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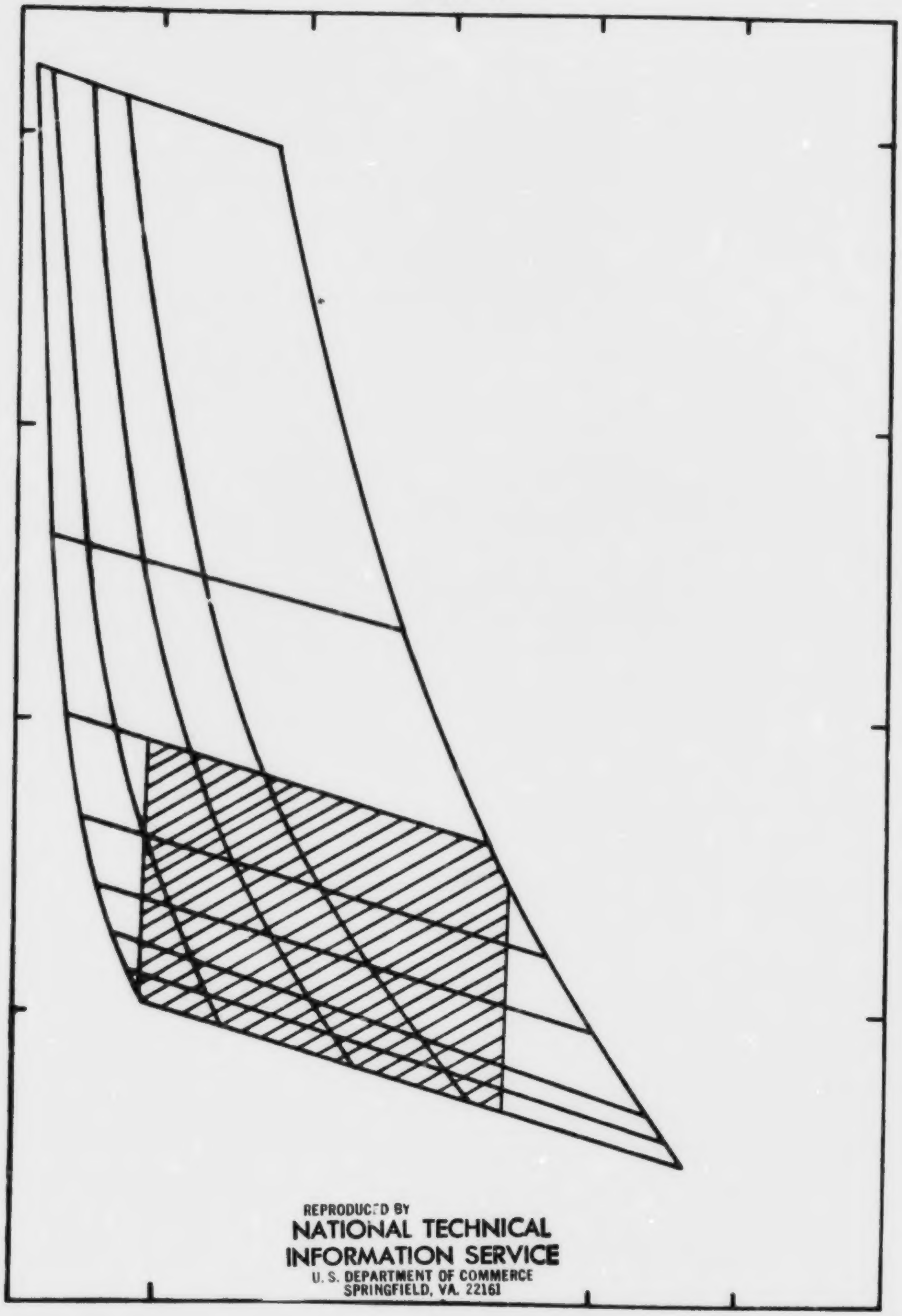
EFFLUENT STANDARDS AND WATER QUALITY INFORMATION ADVISORY COMMITTEE

MARCH 2, 1974 - MARCH 1, 1975

PART II



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ANNUAL REPORT
OF
ACTIVITIES
OF THE
EFFLUENT STANDARDS AND WATER QUALITY INFORMATION ADVISORY COMMITTEE

PART II

(Working Papers of ES&WQIAC)

ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

MARCH 2, 1974 - MARCH 1, 1975

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ATTENTION

AS NOTED IN THE NTIS ANNOUNCEMENT, PORTIONS OF THIS REPORT ARE NOT LEGIBLE. HOWEVER, IT IS THE BEST REPRODUCTION AVAILABLE FROM THE COPY SENT TO NTIS.

FOREWORD

This is the second annual report of the Effluent Standards and Water Quality Information Advisory Committee (ES&WQIAC) to the Administrator of EPA.

The ES&WQIAC was established as a statutory Advisory Committee under PL 92-500 to provide, assess, and evaluate scientific and technical information on effluent standards and limitations. This report summarizes the legislative basis and operations of the Committee for the period March 2, 1974 to March 1, 1975. The report consists of two parts, bound separately.

The first chapter of Part I of the report describes the legislative basis of the committee, its structure, and a summary of its activities to March 1, 1975. Subsequent chapters provide an overview of the Committee's activities and results achieved. Many of ES&WQIAC's hearings and workshops were summarized in the Bureau of National Affairs Environmental Reporter and some of these have been included in this report.

Part II of the report includes the detailed comments provided by the Committee during the process of development of effluent limitations by EPA. Since the originals of these comments were transmitted to EPA much of the copy included in this volume is of varying quality.

Dr. Martha Sager, Chairman

PREFACE

ES&WQIAC PROCEDURE FOR THE REVIEW OF DEVELOPMENT DOCUMENTS

Background and Purpose of Review

ES&WQIAC reviews of Development Documents are prepared as one aspect of the ES&WQIAC responsibility to provide scientific and technical information to the Administrator of EPA.

These reviews are structured in a manner which highlights key information in the documents together with the specific comments of the ES&WQIAC reviewer. Accordingly, the reviews provide specific guidance to the EPA Administrator and the Effluent Standards Division of EPA as well as providing a useful summary for others.

Procedure

The Development Documents are read in their entirety or in part depending upon the time that is available for the review. Following reading and analysis an ES&WQIAC review report is prepared.

Format and Contents

The ES&WQIAC review reports are generally divided into the following sections:

- General Information
- Subcategorization
- Pollutant Parameters
- Raw Waste Loads
- Treatment Technologies
- Effluent Limitations
- Cost, Energy, & Non-Water Quality Aspects
- Comments and Recommendations

Background material from the Development Documents is included as well as comments in order to make the review reports self consistant and provide ready reference.

The section indicated as "General" includes the name of the contractor and the personnel in charge of the preparation of the Development Document. For ready reference the names of the Project Director and the Project Officer are given.

Pertinent facts regarding the industry covered by a Development Document are given. These facts are size of industry, geographical location, number of employees, variations in processes used and pertinent economics.

In regard to the "Subcategorization" section, the subcategories recommended by the Contractor are abstracted and listed. The rationale used for the subcategorization is reviewed - if the rationale can be found in the Development Document.

The pollutant parameters for the particular industry are noted but only those included in the recommended limitations are listed in the review.

Considerable time is spent in searching out the raw waste loads for the industry and if possible for each of the subcategories. This often has been a very time consuming task and the results not always satisfying. In many instances it has been very difficult to find what the contractor believes the raw waste load for a subcategory should be.

In regard to the "Treatment Technologies" section of the review, all of the suggested technologies that may be used are listed. The comments on all sections are included in the "Comments and Recommendations" of the review.

The section on "Cost, Energy and Non-Water Quality Aspects" is an attempt to present what the Contractor or Contractors say in summary about the impact of proposed limitations in these areas.

In the section on "Effluent Limitations" the review usually brings out the effluent quality in terms of the concentration of the polluting constituents as this is the only way to evaluate the quality of effluent required by the limitations. It is also necessary to determine, if possible, the raw waste loads in terms of volume and concentration. This section of the reveiw is usually very difficult and time consuming but certainly is necessary if a comprehensive and meaningful review is to be made.

The "Comments and Recommendations" section may contain from 4 or 5 to more than 100 remarks about the Development Document. These remarks may include indications of typographical errors and notes on important paragraphs or those needing clarification. Attention is called to errors or questionable graphs and flow diagrams. Comments on the thoroughness of the Development Document are often made. The opinion of the reviewer on the adequacy of the data on which the limitations are based is often presented. If the treatment technology is based on a transfer of information from another industry a comment on the validity of the process is made by the reviewer. If there is a doubt about the subcategorization in the reviewer's mind a comment is made about it. In regard to the limitations, if the values are higher or lower than the reviewer believes they should be, a suggestion for modification is made. The difference between the BPT and BAT limiting values are noted and variations from the expected results of the indicated technologies are commented upon by the reviewer. The reviewer usually comments on the applicability of the limitations in the practical world.

Constructive criticisms are offered on all phases of the Development Document whenever it seems appropriate.

COMMENTS & RECOMMENDATIONS ON CONTRACTORS' REPORTS

COMMENTS & RECOMMENDATIONS ON CONTRACTORS' REPORTS

To assist it in meeting the mandates of PL 92-500, EPA hired contractors from private industry to prepare draft development documents for various industrial categories.

The following comments by ES&WQIAC pertain to contractors' reports for the waterborne shipping, railroads, air transportation, and trucking subcategories of the transportation industry, pulp, paper and paperboard industries, the forming and finishing segments of the iron and steel industry, canned and preserved fruits and vegetables, steam supply, coal mining and clay, ceramic, refactory, and miscellaneous minerals industries.

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ES&WQIAC COMMENTS SUBMITTED BY
MEMBERS RAMON GUZMAN AND DON BLOODGOOD

July 6, 1974

TRANSPORTATION
WATERBORNE SHIPPING

GENERAL INFORMATION

Cargo Vessels 1973	1748
Ferries	21
Tankers (self propelled)	343
Towboats	4064
Sailing Vessels	10
Barges and Scows	18804
Tankers	3313
Railroad Carfloats	128

CATEGORIES (Segments)(Subcategories)

1. Hold Cleaning
2. Ballast Water
3. Bilge Water
4. Bulk Solids Handling
5. Bulk Liquids Handling
6. Container Cleaning
7. Automobile Cleaning
8. General Commodity Handling
9. Equipment Maintenance
10. Passenger Terminals

SIGNIFICANT WASTEWATER CONSTITUENTS

Constituent	Categories
Free Oil	1, 2, 3, 5, 6, 7, 8, 9
Emulsefied Oil	1, 3, 5, 7
Suspended Solids	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Dissolved Solids	1, 2, 3, 4, 5,
Acid-Bases	1, 5
Detergents	1, 3, 5, 7, 9, 10
BOD - COD	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
Phenols	1, 5
Cyanides	1, 5
Metals	1, 3, 5
Phosphorus	1, 10
Ammonia	1, 5 10
Bacteria	3, 10

Preceding page blank

DATA FROM

Site A	See Tables that follow
Site B	See Tables that follow
Site C	See Tables that follow
Site D	See Tables that follow
Site E	See Tables that follow
Site F	See Tables that follow
Site G*	East Coast
Site H*	Great Lakes
Site I*	Great Lakes
Site J*	Ohio River
Site K*	West Coast - See Tables that follow
Site L	Ohio River
Site M*	Great Lakes
Site N	(See Attached Table)

* No significant data provided

RAW WASTE LOADS

TABLES 13, 14, 15, 16, 17, 18, 19, 20

Table 13
Influent and Effluent Data - Site A

	Free Oil mg/l	Emulsified Oil mg/l	Dissolved Oil mg/l	Total Oil mg/l
Influent				
4/27/71	0.2	9.1	0.8	10.1
4/30/71	11.7	9.4	4.1	15.2
Effluent				
4/27/71	0.0	6.8	1.1	7.9
4/30/71	.05	(16.3)	5.0	(21.4) 11.9

Table 14
Influent and Effluent Data - Site B

	Free Oil mg/l	Emulsified Oil mg/l	Dissolved Oil mg/l	Total Oil mg/l
Influent	0.6	12.3	10.7	23.6
Effluent	.05	14.5	7.8	22.4

Table 15
Influent and Effluent Data - Site C

	Free Oil mg/l	Emulsified Oil mg/l	Dissolved Oil mg/l	Total Oil mg/l
Influent	7.6	21.8	8.4	37.8
Effluent	3.5	17.5	1.6	22.6

Table 16
Influent and Effluent Data - Site D

	Free Oil mg/l	Emulsified Oil mg/l	Dissolved Oil mg/l	Total Oil mg/l
Influent				
4/29/71	5.0	22.2	23.5	50.7
4/30/71	13.4	26.1	12.6	52.1
Effluent				
4/29/71	8.8	17.1	26.7	52.6
4/30/71	1.8	17.1	16.7	35.6

Table 17
Influent and Effluent Data - Site F

	Free Oil mg/1	Emulsified Oil mg/1	Dissolved Oil mg/1	Total Oil mg/1
Influent				
4/28/71	17.7	14.9	3.9	36.5
4/30/71	40.0	32.5	10.5	83.0
Effluent				
4/28/71	8.0	16.9	4.9	29.8
4/30/71	36.8	5.5	10.7	53.0

Table 18
Influent and Effluent Data - Site F

	Free Oil mg/1	Emulsified Oil mg/1	Dissolved Oil mg/1	Total Oil mg/1
Influent				
4/27/71	12.4	9.8	2.0	24.2
4/28/71	178.3	39.1	3.0	220.4
4/29/71	4.2	18.7	37.0	59.9
Effluent				
4/27/71	14.8	13.9	4.0	32.7
4/28/71	6.0	12.3	0.3	18.6
4/29/71	0.5	14.5	34.2	49.2

Table 19
Effluent Data - Site K

	1	2	3	4	5
D.O. mg/1	0	1	1	1	1
Suspended Solids mg/1	71	140	182	115	76
Settleable Solids mg/1	4	7	1	1	1
Oil & Grease mg/1	700	2276	411	260	50

Table 20
Effluent Data - Site N

	mg/1
Oil & Grease	4-8
D.O.	6-8
BOD	50-80
COD	50
Settleable Solids	1 (ml/1)
pH	7.5-9.0

TREATMENT TECHNOLOGY

- Pretreatment
  - Screening
  - Grit Removal
  - Equalization & Storage
  - Oil Separation
- Primary Treatment
  - Neutralization
  - Chemical Addition
  - Coagulation
  - Gas Flotation
  - Sedimentation
- Secondary Treatment
  - Activated Sludge
  - Contact Stabilization
  - Trickling Filter
  - Aerated Lagoon
  - Sedimentation
- Tertiary Treatment
  - Coagulation
  - Sedimentation
  - Filtration
  - Carbon Adsorption
  - Ion Exchange
- Sludge Treatment
  - Digestion
  - Wet Combustion
  - Centrifugation
  - Thickening
  - Vacuum Filtration
  - Lagooning
  - Drying Beds
- Sludge Disposal
  - Incineration
  - Landfill
- Liquid Disposal
  - Controlled or Transported Discharge
  - Evaporation
  - Incineration

EFFECTIVENESS OF TREATMENT

See tables 11 and 12 for expected effluents from Waterborne Shipping Facilities.

TABLE 11

Estimated Oil Concentration Achieved by Various Primary Oil/Water Separation Processes (1)

Separator Commercially Available	Maximum Throughput	Effluent Oil (1) Concentration (mg/l)
API Rectangular	Unlimited*	50-75
Circular	Unlimited*	50-75
Inland Steel - "Hydro-Gard"	Unlimited*	50-75
Shell PPI	Unlimited*	35-50
Shell CPI	Unlimited*	35-50
Finger Plate Separator	Unlimited*	35-50
Fram/Akers - Plate Separator	1,000 GPM	50-100
Fram/Akers - System**	1,000 GPM	15
Keene - Gravi Pak	1,000 GPM	20
Holding Tanks with Oil Skimmers	Batch	50-100

* These separators use multiple concrete basins and can be designed with sufficient capacity for any flow rate.

** Combination Separation Process.

Page 51 of Contractor's Draft
Development Document

TABLE 12

$%Lowest Effluent Concentrations Expected from Oily Waste$%
$%Treatment Processes$% (14)

	Effluent Concentration, mg/1				
Process	BOD(5)	COD	Suspended Solids	Oil	Phenol
API Separator	250	260	50	20	6
API Separator + Clarifier	45	130	25	5	10
API Separator + Dissolved Air Flotation	45	130	25	5	10
API Separator + Granular Media Filter	40	100	5	6	3
API Separator + Oxidation Pond	10	50	20	1.6	0.01
API Separator + Clarifier, Dissolved Air Flotation Granular Media Filter, Aerated Lagoon	10	50	10	5	0.1
API Separator + Trickling Filter	25	80	20	10	0.5
API Separator + Clarifier, Dissolved Air Flotation, Granular Media Filter, Activated Carbon	5	30	10	2	1.0

BPT and BAT

Table 1 shows BPT limitations. The limitations for BAT are the same as for BPT.

TABLE 1

Proposed Effluent Limitations Guidelines for Best Practicable Control Technology Currently Available - Waterborne Shipping Segment of Transportation Industry (monthly average)

Activity	BOD_5 mg/l Avg.	BOD_5 mg/l Max.	COD mg/l Avg.	COD mg/l Max.	Total Suspended Solids mg/l Avg.	Total Suspended Solids mg/l Max.	Oil and Grease mg/l Avg.	Oil and Grease mg/l Max.	Phenols mg/l Avg.	Phenols mg/l Max.	pH units Avg.	pH units Max.	Cyanide Max. mg/l	Total Chromium Max. mg/l	Fecal Coliform No./100 ml
Over the water hauling	limited by other activities (see Section VI)														
Hold Cleaning	30	50^{++}	300	500^{++}	30	50	10	20	.05	0.1^{++}	6.0	9.0	0.2^{++}	0.25^{++}	
Ballast Water	*	*	*	*	30	50	10	20	*		6.0	9.0	*	*	
Bilge Water	*	*	*	*	30	50	10	20	*		6.0	9.0	*	*	200
Bulk Solids Handling	*	*	*	*	30	50	*	*	*	*	6.0	9.0	*	*	
Bulk Liquids Handling	30	50	200	400	30	50	10	20	.05	0.1	6.0	9.0	0.2^{++}	0.25^{++}	
Container Cleaning	30	50	150	300	30	50	10	20	*		6.0	9.0	*	*	
Automobile Cleaning	*		*		30	50	10	20	*		6.0	9.0	*	*	
General Commodity Handling	*		*		30	50	10	20	*		6.0	19.0	*	*	
Equipment Maintenance	*		*		30	50	10	20	*		6.0	9.0	*	*	
Passenger Terminals	Meet requirements for municipal secondary treatment.														

* Not a control parameter for activity listed.

++ These are not limited when only petroleum products are involved (see Section VI)

COMMENTS AND QUESTIONS

1. How sound are the estimates on flow?

2. Very little data on which to make evaluations of RWL or treatment effectiveness.

3. Surface area loadings of settling or separation units are not given.

4. How sound are cost estimates?

5. Oil concentrations of 10 mg/l average can not be verified because testing technique is not that precise.

6. Oil concentrations of less than 100 mg/l are not believed to be necessary when effluent is discharged to municipal treatment systems where the contributed flow is 10% or less of the municipal flow.

7. Oil limitations for BPT for all segments will be more reasonable if 25 mg/l value is used.

8. Limits, for all segments, for suspended solids should all be the same and at 30 mg/l for BPT.

9. Limits for both COD and BOD are not necessary and if used they will be confusing.

10. The comments for the waterborne shipping segment of the Transportation Industry are basically the same as for the railroad, trucking, and air segments.

11. No industry is utilizing at present, secondary or tertiary treatment facilities, thus it should not be considered BPT. This industry generates very low water volumes, and the use of biological systems as trickling, filtration, and activated sludge, should not be required. As well, the operations are not continuous. This would result in difficulties in developing and maintaining the normal microbiological flora needed for the degradation of the organic molecules in a secondary treatment facility.

12. The suspended solids can be effectively removed in good oil separation facilities. The removal of suspended solids, however, is incidental in the removal of the oil and grease by the API or gravity separators; thus, it should not be included as a parameter. The requirement of a suspended solids removal greater than that which could be attained by a gravity separator, would result in the need of coagulation, sedimentation, and filtration facilities, which are not considered for BPT. It is considered that if good maintenance of the oil gravity separators is attained, then the suspended solids can be decreased to a desired level without imposing a limitation that may require the equivalent of water filtration plants. It should also be considered that most of these installations are small, and the pollutional impacts are small in comparison with other industrial pollution sources. The API separators may reudce 50-75% of the greases and suspended solids, although in this segment of the industry, the installations surveyed showed much lower efficiencies, probably because of poor maintenance.

13. Considerations should be given to the size of the facility. It would not be wise to apply the same effluent guideline limitations, for example, to plant Site A, described in the report, which generates 1.7 gpm, as to the others which treat higher volumes of wastewater.

14. It appears that in all the segments of this industry, namely trucking, railroads, waterborne shipping and air, the guidelines were developed for BAT, and were included as BPT. It should be noticed that no industry in the four segments studied is practicing the proposed BPT, (although the technology is avilable) - in which case the requirement should be BAT.

15. The reduction of hexavalent chromium ion could be attained by banning of chromium salts for water conditioning. Otherwise, it would require the construction of process plants for the reduction of the hexavalent to trivalent chromium, with the resulting generation of metallic sludges. It is considered preferable to ban the use of chromium rather than to require the construction of plants to remove it. As no industry in this segment is attaining the proposed limitation for the heavy metals by precipitation of the metallic oxides, the reduction of chromium should not be included as BPT.

16. BPT should be limited to oil and grease removal by API or gravity separators. Suspended solids, BOD, COD, metals and cyanides removed should be considered incidental to the removal of oil and grease for BPT.

17. No consideration apparently was given to the fact that the presence of chromium in the wastewaters is the result of an operation not associated with the process itself. The origin of the hexavalent chromium is the use of corrosion inhibitors for the air conditioning system. This should be a different phase rather than being included as one of the constitutients present in the wastewaters from the operations conducted on the waterborne shipping, railroad, trucking and air borne segments.

18. The Act states that BPT is to be based on the average of the best existing performance by plants of various sizes, ages, and unit processes within each industry category. None of the recommended standards are based on this principle. Thus, BPT can not be considered as being coagulation, sedimentation, filtration, reduction of metalic ions by converstion to their hydroxide form, activated carbon adsorption, and other methods suggested in the proposed guidelines for the transportation industry.

NOTE

Suggested editorial changes and questions about the meanings intended in various sections of the Contractor's Development Document have been indicated on the copy of the docment being sent to the Effluent Guidelines Division for their consideration.

ES&WQIAC COMMENTS SUBMITTED BY
MEMBERS RAMON GUZMAN AND DON BLOODGOOD

July 6, 1974

TRANSPORTATION
RAILROADS

GENERAL INFORMATION

200	Sites as of Mid-1971
11	Railroad facilities and 1 tank car facility visited
850	Locomotive fueling stations
60 to 100	Locomotives fueled per station per day
75	Heavy diesel repair shops
19	Covered hopper car cleaning facilities
67	Facilities for fabrication, repair and testing tank cars - "there are at least twice this number" - "It is assumed that they all do cleaning"
195,000	tank cars in use in the U. S. A.

CATEGORIES (Segments)(Subcategories)

1. Switching
2. Track Maintenance
3. Locomotive Fueling
4. Locomotive Sanding
5. Locomotive Washing
6. Locomotive Running Maintenance
7. Locomotive Heavy Diesel Repairs
8. Locomotive Painting
9. Car Maintenance
10. Box Car Cleaning
11. Covered Hopper Car Cleaning
12. Tank Car Cleaning

SIGNIFICANT WASTEWATER CONSTITUENTS

Constituents	Categories
Free Oil	3, 5, 6, 7, 9, 12
Emulsified Oil	3, 5, 6, 7, 12
Suspended Solids	3, 4, 5, 6, 7, 9, 10, 11, 12
Dissolved Solids	5, 6, 7, 11, 12
Acid or Bases	5, 6, 7, 10, 11, 12
Detergents	5, 6, 7, 10, 11, 12
Solvent Phenols	7, 12
COD - BOD Substances	3, 5, 6, 7, 10, 11, 12
Metals	5, 6, 7, 12
Cyanide	12
Ammonia	10, 11, 12
Phosphorus	5, 6, 7, 10, 11, 12
Bacteria	10

RAW WASTE LOADS

Table 8, page 37, Contractor's Report (revised).

TREATMENT TECHNOLOGY

Pretreatment
- Screening and Grit Removal
- Equalization and Storage
- Oil Separation

Primary Treatment
- Chemical (Intermediate)
  - Neutralization
  - Chemical Addition and Coagulation
- Physical
  - Gas Flotation
  - Sedimentation

TABLE 8
ESTIMATED RAW WASTE LOADS PER UNIT OF ACTIVITY
RAILROAD SEGMENT OF TRANSPORTATION INDUSTRY

Activity	Unit	Flow liters	Flow gal.	Oil kg.	Oil lbs.	Susp. Solids kg.	Susp. Solids lbs.	Diss. Solids kg.	Diss. Solids lbs.	Detergents kg.	Detergents lbs.	Phenols kg.	Phenols lbs.	BOD5 kg.	BOD5 lbs.	COD kg.	COD lbs.	Chromium kg.	Chromium lbs.	Cyanide kg.	Cyanide lbs.	Ammonia kg.	Ammonia lbs.	Phosphorus kg.	Phosphorus lbs.	pH units	Bacteria org./100 ml
1 Switching		not an industrial wastewater source																									
2 Track Maintenance		not an industrial wastewater source																									
3 Locomotive Fueling & 4 Sanding	Locomotive	2	5	([illegible]) 0.8	1.75	([illegible]) [illegible]	6.4																				
5 Locomotive Washing	Locomotive	4,540	1,200	(971) 4.5	10	(991) 4.5	10	13.5	30	0.2	0.5			(44) 0.2	0.5	1.1	2.5							(2200) 0.1	0.2	9-11	
6 Locomotive Running Maintenance	Locomotive	1,135	300	(969) 1.1	2.5	(969) 1.1	2.5	3.5	7.5	0.05	0.1			(4.4) 0.05	0.1	0.3	0.6							0.02	0.05	9-11	
7 Locomotive Heavy Diesel Repairs	Locomotive	7,600	2,000	(1013) 7.7	17	(1013) 7.7	17	23	50	0.4	0.8	(1.3) 0.01	0.03	(105) 0.8	1.7	3.9	8.5	(5.3) 0.04	0.08					0.2	0.4	9-11	
8 Locomotive Painting	Locomotive	0	0																								
9 Car Maintenance	Car	< 40	< 10	<0.05	<0.1																						
10 Box Car Cleaning	Car	1,900	500			(1052) 2	4			0.1	0.2			(526) 1	2	3	6					(52.6) 0.1	0.2	0.1	0.2	6-10	low to very high
11 Covered Hopper Car Cleaning	Car	5,700	1,500			(877) 5	12	17	36	0.3	0.6			(52.6) 0.3	0.6	0.8	1.8					(52.6) 0.3	0.6	0.3	0.6	6-11	
12 Tank Car Cleaning	Car	11,350	3,000	(969) 11	25	(969) 11	25	34	75	0.7	1.5	(96.9) 1.1	2.5	(1493) 17	37	170	375	(1.0) .11	.25	(1.0) .11	.25	(17.6) 0.2	0.5	(61.7) 0.7	1.5	6-11	

Numbers in ( ) are mg/1

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- Secondary Treatment
    - Dissolved to Suspended Transfer
        - Activated Sludge
        - Contact Stabilization
        - Trickling Filter
        - Aerated Lagoon
    - Suspended Solids Removal
        - Sedimenttion

- Tertiary Treatment
    - Coagulation and Sedimentation
    - Filtration
    - Carbon Adsorption
    - Ion Exchange

- Sludge Treatment and Disposal
    - Digestion or Wet Combustion
    - Centrifugation
    - Thickening
    - Vacuum Filtration
    - Lagooning
    - Drying Beds
    - Incineration
    - Landfill

- Liquid Disposal
    - Controlled or Transported Discharge
    - Evaporation and Incineration

DATA FROM

- Heavy Diesel Repair Shops (gravity separator to treatment plant)
    - Site A Midwest (fueling 20 units/day)
    - Site B Eastern
    - Site C Southeastern
- Roundhouses
    - Site D Eastern
    - Site E Northern Northwest
    - Permit application date from nine sites
- Fueling Stations
    - Site F Southeastern (serves about 180 locomotives per day)
    - Site G Eastern (serves 160 locomotives/day)
    - Site H Southeast (six switch engines/day)
    - Site I Midwest (out of service)
- Tank Cleaning
    - Site K Midwest (150-200 commodities, 2000 cars

Data from 16 Sites furnished by others.

See Tables 12, 15, 16 17, 18, 19, and 20 for effluents from railroad facilities.

?

TABLE 12
DATA FROM TYPICAL HEAVY DIESEL REPAIR SHOPS

Site	Units Repaired/mo.	Units Maintained/mo.	Units Fueled/mo.	Wastewater flow gpd	Treatment*	Oil mg/1 In	Oil mg/1 Out	TS mg/1 In	TS mg/1 Out	TDS mg/1 In	TDS mg/1 Out	SS mg/1 In	SS mg/1 Out	COD mg/1 In	COD mg/1 Out	MBAS mg/1 In	MBAS mg/1 Out	Cr mg/1 In	Cr mg/1 Out
A	300	600	3600	288,000	GS,A,C	56,000	23			28,600	1,380	1,130	112	70,000	224	535	80	0.9	0.2
B	60			324,000	GS,A,C	536	386	808	614	595	515	220	113					0.21	0.16
C	20	290	1200	250,000	GS,A	200	65	529	409	426	351	101	58	680	260				

* GS - Gravity Separator; A-Air Flotation; C-Chemical Addition

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TABLE 13
DATA FROM TYPICAL LOCOMOTIVE FUELING, WASHING, AND RUNNING MAINTENANCE STATIONS

Site	Units Fueled/mo.	Fuel Pumped gal/mo.	Wastewater Flow gpd	Treatment*	Oil mg/1 In	Oil mg/1 Out	TS mg/1 In	TS mg/1 Out	TDS mg/1 In	TDS mg/1 Out	SS mg/1 In	SS mg/1 Out	COD mg/1 In	COD mg/1 Out	MBAS mg/1 In	MBAS mg/1 Out	Cr mg/1 In	Cr mg/1 Out	BOD mg/1 In	BOD mg/1 Out	Phenol In	Phenol Out
1	1,900	1,278,000	144,000	GS,HP,A		25				1,067				443		6.4		.05				
2	1,800	1,800,000	250,000	GS,C,A		40				1,131		73		216		2.7		.03		106		.169
3	900**	603,000	15,000	GS,HP		9				782		10		98				0		12		
4	2,100	798,000	60,000	GS	7,675	145																
5	5,000	2,150,000	210,000	GS	9,633	160											.11	.27				
6	2,700	[illegible]		GS	300,000	66											.28	.33				
7	510	[illegible]	5,400	GS	[illegible]	15											0	0				
8	1,000	[illegible]	10,800	GS	40,500	6.2											.001	.001				
9	660	430,000	2,500	GS	174,500	456											.50	.50				

* GS-Gravity Separator; HP-Holding Pond; A-Air Flotation

** Only 30/mo. washed

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TABLE 16

Influent and Effluent Data - Site D Wastewater Treatment Plant

	Influent mg/l	Effluent mg/l	Removal %
Oil and Grease	96	4	96
Suspended Solids	640	18	97
Dissolved Solids	319	461	-45
COD	296	71	76

TABLE 17
Data on Site F Treatment Plant

	Package Plant		API Separator		706
	Influent	Effluent	Influent	Effluent	
Oil and Grease mg/l	8,100	3	8	3	709
Total Solids mg/l	224	197	324	316	710
Dissolved Solids mg/l	105	102	307	307	711
Suspended Solids mg/l	119	95	17	9	712
pH units	6.7	6.7	6.7	6.7	713
BOD(5) mg/l	not run	not run	not run	13	714

TABLE 18

Data from Site G Treatment Plant

	Influent	Effluent
pH units	10.3	9.8
Settleable Solids mg/l	2.4	0.7
Suspended Solids mg/l	5,287	668
Dissolved Solids mg/l	4,455	803
Oil and Grease mg/l	57,716	1,325
Chromium mg/l	0.88	3.09
Copper	0.31	0.18
Zinc mg/l	0.24	0.32
Lead mg/l	0.12	0.01

TABLE 19

Effluent Data - Site K Tank Car Washwater Treatment Plant

Oil and grease mg/l	5.1
Suspended Solids mg/l	64
BOD(5) mg/l	300
COD mg/l	384
Kjeldahl nitrogen mg/l	11.5
pH units	6.7
phenols mg/l	28
chromium mg/l	.04
surfactants mg/l	.24
dissolved solids mg/l	2,766

TABLE 20

Summary of Data Provided by Operators of Tank Car Washing Facilities

te	No. Cars/ day	Wastewater Flow m^3/day	Wastewater Flow gpd	Commodities Washed	Cleaning Methods	Waste Treatment	Oil mg/l in	Oil mg/l out	SS mg/l in	SS mg/l out	BOD mg/l in	BOD mg/l out	COD mg/l in	COD mg/l out
	1.6	38	10,000	oil, chemicals gas, food products	caustic, steam detergent, flaring chipping, water, solvent	preliminary settling, oil separator, to sanitary sewer	ND	ND high	ND	510	ND	60	ND	ND
	1.1	19	5,000	same	same	oil separator, pH adj., to creek	ND	21	ND	100	ND	128		
	9	57	15,000	anhydrous ammonia, LPG, acid, caustic, oil	venting, steam, detergent, water	evaporation skimmer, no	ND		ND		ND		ND	
	2	ND	ND	gas, petroleum	steam, detergent, venting	closed system, incineration	ND		ND		ND		ND	
	4	188	50,000	LPG, anhydrous ammonia, acid, caustic, oil, asphalt, vol. hydrocarbons, food products	venting, steam, water, caustic, acid, solvent	primary basin, skimmer, secondary basin, to surface water	52	23	16	18	11	30	81	135
	9	95	25,000	not available	steam, fuel oil, detergent, venting, water	API oil separat. to sanitary sewer	1,983	97	74	39	ND	ND	ND	ND
	11	194	51,000	organic & inorganic liquids, gas, solids	water, steam, caustic, kerosene, detergent	physical-chemical to sanitary sewer	ND	ND	ND	ND	ND	ND	ND	ND
	5	72	19,000	same	same	same	ND	ND	ND	ND	ND	ND	ND	ND
	[illegible]	170	45,000	same	same	ponding, no outlet	ND	ND	ND	ND	ND	ND	ND	ND
	6	17	4,500	same	same	pond & spray irrigation	ND	ND	ND	ND	ND	ND	ND	ND
	5	33	8,600	same	same	settling, evaporation	ND	10	ND	272	ND	ND	ND	835
	5.5	60	16,000	oil, acids, bases gums, foodstuffs, organic liquids	steam, water, detergent	segregation, settling, gravity separator, batch trmt. pond settling, to stream	10-4,000		50-20,000	15-50	ND	ND	200-40,000	200-5,000
	6.3	60	16,000	same	same	primary settling, ponds in series, to streams	3	ND	ND	ND	ND	ND	ND	ND
	3.4	26	7,000	same	same	settling tank, gravity separation, pond, to stream	12	ND	ND	ND	ND	ND	ND	ND
	5	53	14,000	same	same plus solvents	gravity separator, 3 ponds in series, to stream	ND	ND	ND	ND	ND	ND	ND	ND
	2.5	30	8,000	same	same	gravity, oil separator, 3 ponds in series to stream	ND	ND	ND	ND	ND	ND	ND	ND

EFFLUENT CONCENTRATIONS EXPECTED

See Table 11.

BPT AND BAT

Tables 1 and 2 show BPT and BAT limitations suggested by the contractor. The stipulated concentrations have been calculated and added by the Committee reviewers.

TABLE 11

S"Lowest Effluent Concentrations Expected from Oily Waste$%
Treatment Processes (11)

	Effluent Concentration, mg/l				
Process	BOD	COD	Suspended Solids	Oil	Phenol
API Separator	250	250	50	20	6
API Separator + Clarifier	45	130	25	5	10
API Separator + Dissolved Air Flotation	45	130	25	5	10
API Separator + Granular Media Filter	40	100	5	6	3
API Separator + Oxidation Pond	10	50	20	2	0.01
API Separator + Clarifier, Dissolved Air Flotation Granular Media Filter, Aerated Lagoon	10		10	5	0.1
API Separator + Trickling Filter	25	80	2010	0.5	
API Separator + Clarifier, Dissolved Air Flotation, Granular Media Filter, Activated Carbon	5	30	10	[illegible]	0.1

TABLE 1
PROPOSED EFFLUENT LIMITATIONS GUIDELINES FOR UNIT
FOR BEST PRACTICABLE CONTROL TECHNOLOGY CURRENTLY AVAILABLE
RAILROAD SEGMENT OF TRANSPORTATION INDUSTRY (monthly averages)

	Activity	Unit	Flow/Unit Liters	Flow/Unit Gal.	Oil kg.	Oil lbs.	Susp. Solids kg.	Susp. Solids lbs.	Phenols kg.	Phenols lbs.	BOD kg.	BOD lbs.	COD kg.	COD lbs.	Chromium kg.	Chromium lbs.	Cyanide kg.	Cyanide lbs.	Ammonia kg.	Ammonia lbs.	Phosphorus kg.	Phosphorus lbs.	pH Units	Fecal Coliform org./100 ml
1	Switching	Not an industrial waste source																						
2	Track Maintenance	Not an industrial waste source																						
3	Locomotive Fueling and Sanding	Locomotive	2	5	(10.0) .0002	.0004	(200) .0004	.0008	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.5-9.0	
4	Locomotive Washing	Locomotive	4540	1200	.05 (11)	.12	(19.8) .09	.20	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.5-9.0	
5	Locomotive Running Maintenance	Locomotive	1135	300	.01 (8.8)	.02	(17.6) .02	.05	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.5-9.0	
6	Locomotive Heavy Diesel Repairs	Locomotive	7600	2000	(10.5) .05	.17	.15 (19.7)	.33	(.13) .001	.002	*	*	*	*	(.26) .002	.004	*	*	*	*	*	*	6.5-9.0	
7	Locomotive Painting	Locomotive	0	0	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	* *	
8	Car Maintenance	Car	<40	<10	.0005	.001	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.5-9.0	
7	Box Car Cleaning	Car	1900	500	*	*	.04 (21.0)	.08	*	*	(26) .05	.12	(142) .28	.62	*	*	*	*	(21) .04	.08	*	*	6.5-9.0	200
10	Covered Hopper Car Cleaning	Car	5700	1500	*	*	.11 (1.2)	.24	*	*	(29.8) .17	[illegible]	(158) [illegible]	[illegible]	*	*	*	*	.14 (24.6)	.30	(0.5) .001	.003	6.5-9.0	
11	Tank Car Cleaning	Car	11,350	3000	.11 (9.7)	[illegible]	.23 (40.2)	.50	.001 (09)	.002	.34 (30)	[illegible]	3.4 (300)	[illegible]	(.26) .003	.006	(.18) .002	.005	*	*	*	*	6.5-9.0	

*Not a control parameter for activity listed.

( ) mg/l

TABLE 2
PROPOSED EFFLUENT LIMITATIONS GUIDELINES PER UNIT
FOR BEST AVAILABLE CONTROL TECHNOLOGY ECONOMICALLY ACHIEVABLE
RAILROAD SEGMENT OF TRANSPORTATION INDUSTRY

Activity	Unit	Oil		Susp. Solids		Phenols		BOD(5)		COD		Chromium		Cyanide		Ammonia		Phosphorus		pH Units	Fecal Coliform org./100 ml
		kg.	lbs.	kg.	lbs.	kg.	lbs.	kg	lbs.	kg.	lbs.	kg.	lbs.	kg.	lbs.	kg.	lbs.	kg.	lbs.		
3. Locomotive Fueling & Sanding	# 2 Locomotive	(50) .0001	.0002	(100) .0002	.0004	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.5-9.0	
4. Locomotive Washing	# 4540 Locomotive	(5.5) .025	.05	(11.0) .05	.10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.5-9.0	
5. Locomotive Running Maintenance	# 1135 Locomotive	(4.4) .005	.01	(8.8) .01	.025	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.5-9.0	
6. Heavy Diesel Repair	# 7600 Locomotive	(5.2) .04	.08	(10.5) .08	.17	(.07) .0005	.001	*	*	*	*	.001	.002	*	*	*	*	*	*	6.5-9.0	
9. Box Car Cleaning	# 1900 Car	*	*	(5.2) .01	.02	*	*	(7.9) .015	.03	(36.2) .07	.15	*	*	*	*	(10.5) .02	.04	*	*	6.5-9.0	200
10. Covered Hopper Cleaning	# 5700 Car	*	*	(5.3) .03	.06	*	*	(7.0) .04	.09	(35) .2	.45	*	*	*	*	(12.3) .07	.15	(.25) .0014	.003	6.5-9.0	
11. Tank Car Cleaning	# 11350 Car	(2.6) .03	.06	(4.4) .05	.12	(.02) .0002	.0005	(9.7) .11	.25	(70.5) .8	1.9	(.14) .0007	(.04) .0015	.0005	.0012	*	*	*	*	6.5-9.0	

*Not a control parameter for activity listed.

Numbers in ( ) are mg/l

COMMENTS AND QUESTIONS

1. How sound are the estimates on flow?

2. A minimum of data on which to make evaluations of RWL or treatment effectiveness.

3. Surface area loadings of settling or separation units are not given.

4. How sound are cost estimates?

5. Oil concentrations of 10 mg/l average can not be verified [illegible] as testing technique is not that precise.

6. Oil concentrations of less than 100 mg/l are not [illegible] necessary when effluent is discharged to municipal [illegible] where the industrial flow from the railroad operation [illegible] or [illegible] of the municipal flow.

7. Oil limitations for BPT will be more reasonable if a 2[illegible] value [illegible] used.

8. Limits, for all segments, for suspended solids should be the same and at 30 mg/l for BPT.

9. Limits for all segments, for suspended solids should be the same and at 10-12 mg/l for BAT.

10. Limits for both COD and BOD are not necessary and if used they will be confusing.

11. BAT limits for oils can not be reasonably set until the technique for monitoring law concentrations has been developed.

12. Page 4, Rec No. 2 indicates that drainage from locomotive maintenance be combined and given treatment equivalent to flow equalization, gravity separation, emulsion breaking, coagulation, air flotation and final clarification. We consider that BPT should be limited to oil and grease removal by gravity separator. No industry is using coagulation and final clarification. Although possible, it should not be considered BPT.

13. Page 5 of the Development Document, recommendation number 7 indicates that pretreatment for acceptance into publicly owned treatment systems should include physical-chemical systems to remove oil, solids, metals, and cyanides. The physical chemical system would be activated carbon adsorption; metals would require a process waste plant to remove chromium. It would be considered preferable to determine the possibility of completely banning the chromium, which comes from the air conditioning treatment chemicals. If this is not possible, then some chromium would remain in the effluent, or a process waste plant would have to be required to remove the heavy metal.

14. The Trucking Report indicates that the BAT economically achievable cannot be precisely defined at this time because BPTCA has not yet been applied (X-3). In arriving at the recommended effluent limitations for BAT, judgement was made that treatment systems will remain the same as those described for BPT. We consider that the same reasoning should be applicable to the Railroad Industry.

15. Pollution Parameters

Fueling and Sanding	oil, suspended solids
Locomotive Washing	oil, suspended solids
Locomotive Running Maintenance	oil, suspended solids, chromium
Heavy Diesel Repairs	oil, suspended solids, chromium, pH
Car Maintenance	oil, suspended solids
Box Car Cleaning	suspended solids, BOD, fecal coliform
Covered Hopper Car Cleaning	suspended solids, BOD, pH, NH3, P
Tank Car Cleaning	oil, suspended solids, pH, COD, Cr, CN

It is considered that the limitations should be limited to the removal of suspended solids. Most of the suspended solids present in the wastewater will be reduced with the removal of the oil and greases.

The removal of suspended solids can be effectively attained in good oil separation facilities. This is incidental in the removal of the oil and grease by the API or gravity separators, thus it should not be included as a parameter. Otherwise, to attain the limitation will result in the need for coagulation, sedimentation and filtration facilities.

16. The requirement of chromium limitation for the locomotive running maintenance would require either the construction of a process waste plant providing sulfuric acid and SO2, sodium bisulfite or ferric chloride, and filtration to attain the limitation. Another possibility is to prohibit the use of corrosion inhibitors containing chromium. Seems better to either completely ban the chromium by preventing the use of the corrosion inhibitors containing chromium, or to allow a reasonable chromium content without imposing a process waste plant.

17. Box Car Cleaning - It is considered that the reduction in BOD and COD attained should be that occurring incidental to the removal of oil and greases in the gravity separators. Should additional removal be required, it would be necessary to construct secondary wastewater treatment facilities. Since the box car cleaning is not an intermitent operation, problems will arise with the growth of the microbiological flora needed to attain the degradation of the organic molecules contained in the waste. However, nothing more than the normal cleaning should be required for tank car cleaning either.

18. We suggest the following parameters:

Fuel and Sanding	oil removal, pH
Locomotive Washing	oil removal, pH
Locomotive Running	oil removal, pH
Car Maintenance	oil removal, pH
Box Car Cleaning	oil removal, pH
Covered Hopper Car Cleaning	oil removal, pH
Tank Car Cleaning	oil removal, pH

19. Page 5, recommendation 5f: Should pretreatment for acceptance in publicly owned treatment systems include physical chemical systems then plants to remove chromium would be required. This would be expensive for the limited flow. It is considered that this should not be required.

20. Page 8 indicates that the maximum daily loading limits (monthly averages) per unit of activity for the discharge to surface waters reflecting best available technology. The maximum daily loading limits should not exceed two times the value listed in Table 2. It is recommended that a limitation on how many days the two-times limit could be exceeded be indicated in the guidelines.

21. Very few railroad facilities have industrial water flows greater than 0.5 mgd, and even most of the large shop complexes average less than 0.25 mgd. (V-29) It should be added that the operations are not intermitent, thus it would be difficult to treat the wastes by biological treatment. This being the case, it is doubious that the requirement can be met for reduction of BOD and COD for box car cleaning, covered hopper car cleaning, and tank car cleaning. For example, a typical tank car washing facility would generate a flow of 40-60 m3/day, or 1,514 gpd. This would be very difficult to treat by biological methods. Typical facilities wash only from 1 to 10 cars. A biological treatment unit should not be required.

22. It is noticed that Figure 1 (Page 55) shows a typical classification of wastewater treatment schemes. Activated sludge and trickling filters are indicated as secondary treatment. However, the text of the report lists these treatments as tertiary treatments. This should be revised for the final document.

23. Physical treatment for oil will remove suspended solids and some portions of the heavy metals. The presence of metals in amounts sufficient to require specific treatment are not known or expected. Thus, the use of metal as a control parameter is not considered necessary.

24. The wastewaters are low in volume; installations are small; and pollutional impacts are small in comparison to other pollutional sources. Wastewaters, if not a continuous operation, can not be satisfactorily treated by activated sludge or trickling filtration under normal operating conditions.

25. The general practice among this industry is to discharge to holding ponds or lagoons, in some cases after being skimmed or having gone through oil separating devices. BPT should be directed toward removal of the oils by API separators, skimming, and lagooning, as it is being practiced at the present time. BPT should not require expensive treatment methods such as activated sludge or activated carbon adsorption. API separators can eliminate 50-75% of the oil, suspended solids, BOD and COD, present, and some of the heavy metals.

26. Since no facility is utilizing secondary treatment, this should not be considered BPT.

27. No. 3 indicated that the waste should be collected on impervious surfaces and the drainage then treated. Does it imply that treatment should include removal of BOD, COD, metals and cyanides?

28. Why is secondary treatment for the elimination of BOD and COD required when the flow is so little, many times less than 2,000 gpd?

29. Do the same limitations apply to the small industry with less than 2,000 gpd? Has the size of the plants been considered in the development of the guidelines?

30. The draft indicates removal of BOD and COD by biological methods, but Table I does not include these parameters. Why?

NOTE:

Suggested editorial changes and questions about the meanings intended in various sections of the Contractor's Development Document have been indicated on the copy of the document being sent to the Effluent Guidelines Division for their consideration.

ES&WQIAC COMMENTS SUBMITTED BY
MEMBERS RAMON GUZMAN AND DON BLOODGOOD

July 6, 1974

TRANSPORTATION
AIR TRANSPORTATION

GENERAL INFORMATION

138,326	Aircraft in the Civil Aviation Fleet
12,106	Airports in the U.S.A. in 1972.

CATEGORIES (Segments)(Subcategories)

1. Aircraft Ramp Service
2. Aircraft Rebuilding and Overhauling
   a. Engine Operations
   b. Airframe Operations (Exterior & Interior)
3. Aircraft Maintenance
   a. Routine
   b. Washing
4. Ground Vehicle Service and Maintenance
5. Fuel Storage Centers
6. Terminal and Related Facilities

SIGNIFICANT WASTEWATER CONSTITUENTS

Constituents	Categories
Acid and Alkalis	2a, 2b, 3a, 3b, 4
Oxygen Demanding Materials	1, 2a, 2b, 3a, 3b, 4, 5, 6,
Detergents	2a, 2b, 3a, 3b, 4, 6
Phosphates	2a, 2b, 3a, 3b, 4
Suspended Solids	1, 2a, 2b, 3a, 3b, 4, 5, 6
Dissolved Solids	2a, 2b, 3a, 3b, 4, 5, 6
Oil and Greases	1, 2a, 2b, 3a, 3b, 4, 5
Organic Solvents	2a, 2b, 3a, 3b, 4
Phenols	2a, 2b, 3a, 3b, 4
Cyanides	2a, 2b, 3a, 3b, 4
Heavy Metals	2a, 2b, 3a, 3b, 4
Bacteria	6

RAW WASTE LOADS

Table 9, page V-10 of Contractor's Report (revised).

Table 9

Estimated Raw Waste Loads Per Unit of Activity
Air Transportation Segment of Transportation Industry

Activity	Unit	Flow liters	Flow gal	pH units	BOD_5 kg	BOD_5 lbs	COD kg	COD lbs	Susp. Solids kg	Susp. Solids lbs	Dissolved Solids kg	Dissolved Solids lbs	Oil and Grease kg	Oil and Grease lbs	Phenols kg	Phenols lbs	Detergents kg	Detergents lbs	Cyanide kg	Cyanide lbs	Cadmium kg	Cadmium lbs	Total Chrome kg	Total Chrome lbs	Copper kg	Copper lbs	Lead kg	Lead lbs	Nickel kg	Nickel lbs	Zinc kg	Zinc lbs
1. Aircraft Ramp Service	aircraft	760	200	6-10	(250) 0.19	0.42	(592) 0.45	1.0	(197) 0.15	0.33	(395) 0.30	0.67	(145) 0.11	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Aircraft Rebuilding and Overhaul																																
Engine Operations	engine	283,900	75,000	2-12	(250) 71	156	(549) 170	375	(200) 57	125	(402) 114	250	(151) 43	94	(8.1) 2.3	5.0	-	-	(3.06) 0.87	1.9	(2.1) 0.59	1.3	(12.0) 3.4	7.5	(5.9) 1.7	3.8	(.49) 0.14	0.31	(2.1) 0.59	1.3	(1.02) 0.29	[illegible]
Airframe Operations (Exterior & Interior)	aircraft	311,100	822,000	2-12	(2504) 779	1714	(6810) 2370	[illegible]	(2002) 623	1372	(4005) 1246	2742	(1501) 467	1028	(80.3) 25	54.8	-	-	(30.2) 9.4	20.6	(20.0) 6.2	13.7	(120.2) 37.4	82.3	(60.1) 18.7	41.1	(5.0) 1.56	3.43	(19.9) 6.2	13.7	(10.1) 3.14	6.9
3. Aircraft Maintenance																																
Routine	aircraft	7,570	2,000	6-10	(251) [illegible]	4.2	(594) 4.5	10.0	(200) 1.52	3.34	(400) 3.03	6.67	(151) 1.14	2.5	(8) 0.06	0.13	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
Washing	aircraft	30,300	8,000	6-10	(251) 7.6	16.7	(597) 18.1	40.0	(200) 6.05	13.3	(399) 12.1	26.7	(149) 4.5	10.0	(8) 0.24	0.53	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
4. Ground Vehicle Service Maintenance	vehicle	37,850	10,000	6-10	(251) 9.5	20.8	(549) [illegible]	50.0	(201) 7.6	16.7	(401) 15.2	33.4	(150) 5.7	12.5	(8) 0.30	0.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Fuel Storage Centers	-	-	-		Not an industrial waste source																											
6. Terminal and Related Facilities				6.5-8.0	200mg/l		-	-	200mg/l		-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Numbers in ( ) are mg/l

TREATMENT TECHNOLOGY

Physical-Chemical (in some instances biological)

Data From (See Table for RWL)

Site A (Deep well disposal)
Site B
Site C
Site D
Site E
Site F
Site G
Site H
Site I
Site J

No Data
No Analyses

See Tables 11, 12, 13 for Effluents from Airport Treatment Facilities.

TABLE 11

Average Effluent Waste Loads From Airline Maintenance Base Facilities

Site	pH	BOD mg/1	COD mg/1	Suspended Solids mg/1	Oil & Grease mg/1	Phenols mg/1	CN mg/1	Cd mg/1	Cr mg/1	Cu mg/1	Pb mg/1	Ni mg/1	Zn mg/1	Effluent Flow(avg)mgd	Time Study Period
A	-	-	-	-	-	-	-	-	-	-	-	-	-	.523	Jan 72 thru Aug 73
B	7.1	60	-	22	8	2.41	.005	.024	.638	.046	<0.1	.261	.138	0.498	Apr thru Oct 73 (avg)
C	8.6	31		67.2	84.2	-	0.05	-	1.20	0.16	-	0.26	0.03	0.253	May 3,4,7,8,9/73 (avg)
D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Flow unmeasured
E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Flow unmeasured
F	-	-	-	-	-	-	-	-	-	-	-	-	-	0.021	Estimated Flow
G	6.7	-	.178	-	.31	.138	.01	.013	.184	.013	-	.438	-	0.504	Plant analysis January 1974
H	7.8	-	-	-	16.25	0.5	0.24	0.08	1.05 (total)	0.16	0.11	0.40	0.25	0.520	24-hour composites 10-17,24 30-73;11-7-73
I	7.1	-	2,771	46.0	204.6	5,330	0.02	0.64	0.48 (total)	2.53	1.72	0.27	2.15	110 gpd (washing only) (low flow)	Industrial Waste Survey Dade County, Florida Report September 1971
J	6.8	-	47	4.0	87.9	13.6	0.01	<0.01	1.08 (total)	0.02	0.16	0.15	-	0.500	Industrial Waste Survey Dade County, Florida Report Sept. 1971

TABLE 12
Average Waste Loads from Industrial Waste Treatment Lagoons at a West Coast Airport

		Flow mgd	Detention Time - days	pH	BOD mg/l	COD mg/l	Grease mg/l	Phenols mg/l	CN mg/l	Cd mg/l	Cr mg/l	Cu mg/l	Pb mg/l	Ni mg/l	Ag mg/l	Zn mg/l	
South Lagoon	Influent		17	6 - 9	62.5	395	110	0.29	≤ 0.06	0.53	0.21	0.35	0.13	0.18	0.02	0.20	Avg 9-67 thru 10-68
	Effluent	0.14 dry weather		6-10.2	-	-	12.5	0.05	≤ 0.06	≤0.04	0.05	0.07	0.13	0.05	0.04	0.40	Avg 12-68 thru 5-73
North Lagoon	Influent		20	4 - 9	88	254	24	1.0	<0.1	0.16	0.9	0.31	0.29	0.42	0.04	0.48	Avg 2-67 thru 2-69
	Effluent	1.01 dry weather		6-10	-	-	12.5	0.2	0.06	0.06	0.18	0.10	0.06	0.17	0.04	0.61	Avg 9-67 thru 5-73

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TABLE 13

Summary Analysis of Wastewater Discharge From an East Coast Airport

pH	6.6 to 8.4
BOD mg/1	4 to 162
COD mg/1	10 to 750
Oil and Grease mg/1	1 to 88
Phenols mg/1	0.1* to 0.31
Suspended Solids mg/1	5 to 210
Surfactants mg/1	0.50* to 2.30
Cyanide mg/1	0.02*
Cadmium mg/1	0.05*
Chromium (Total) mg/1	0.10*
Arsenic mg/1	0.01*
Iron mg/1	0.10 to 30
Lead mg/1	0.10*
Nickel mg/1	0.05*
Copper mg/1	0.30
Zinc mg/1	0.40
Mercury mg/1	0.002*
Phosphorous (Total) mg/1	0.33 to 1.94

*Indicates values below minimum detectable concentration.

BPT and BAT

Tables 1 and 2 show the BPT and BAT limitations suggested by the Contractor. The speculated concentrations have been calculated and added by the Committee reviewers.

Table 1

Proposed Effluent Limitation Guidelines per Unit for Best Practicable Control Technology Currently Available Air Transportation Segment of Transportation Industry

Loading (monthly average) Activity	Unit	Flow per Unit liters	Flow per Unit gal	BOD$_5$ kg	BOD$_5$ lbs	COD kg	COD lbs	Susp. Solids kg	Susp. Solids lbs	Oil and Grease kg	Oil and Grease lbs	Phenols kg	Phenols lbs	Cyanide kg	Cyanide lbs	Cadmium kg	Cadmium lbs	Total Chrome kg	Total Chrome lbs	Copper kg	Copper lbs	Lead kg	Lead lbs	Nickel kg	Nickel lbs	Zinc kg	Zinc lbs	pH Units
1. Aircraft Ramp Service	aircraft	757	200	*	*	*	*	(26.4) .02	.04	(13.2) .01	.02	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.0-9.0
2. Aircraft Rebuilding and Overhaul																												
Engine operations	engine	283,900	75,000	(25) 7.1	15.6	(12.5) 35.5	78.2	(25) 7.1	15.6	(10.3) 2.9	6.3	(6.6) 0.30	0.60	(.66) 0.03	0.06	(.88) 0.04	0.09	(2.1) 0.14	0.31	(3.1) 0.14	0.31	(.66) 0.03	0.06	(6.2) 0.28	0.63	(6.1) 0.28	0.63	6.0-9.0
Airframe operations (exterior & interior)	aircraft	311,100	822,000	(25) 78	171	(127) 398	875	(25) 78	171	(10) 31.2	68.6	(1) 3.1	6.9	(.1) 0.31	0.69	(.14) 0.45	1.0	(.48) 1.5	3.4	(.48) 1.5	3.4	(.1) 0.31	0.69	(1) 3.1	6.9	(1) 3.1	6.9	6.0-9.0
3. Aircraft Maintenance																												
Routine	aircraft	7,570	2,000	*	*	*	*	(.25) .19	.42	(10.6) .08	.17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.0-9.0
Washing	aircraft	30,300	8,000	*	*	*	*	(40) 0.53	1.67	(9.9) .33	.67	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.0-9.0
4. Ground Vehicle Service and Maintenance	vehicle	37,850	10,000	*	*	*	*	(25) 0.95	2.09	(10.0) .38	.83	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.0-9.0
5. Flight Crew Centers	-	Not an industrial waste source																										
6. Terminal and Related Facilities	***			30 mg/1		*	*	30 mg/1		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.0-9.0

* Not a control parameter for activity listed

*** Effluent limitations for wastes discharged from this activity are subject to treatment requirements established for municipal systems treating sanitary wastes

Numbers in ( ) are mg/1

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Table 2

Proposed Effluent Limitation Guidelines per Unit for Best
Available Control Technology Economically Achievable
Air Transportation Segment of Transportation Industry

Limitation (monthly average) Activity	Unit	Flow per Unit		BOD$_5$		COD		Susp. Solids		Oil and Grease		Phenols		Cyanide		Cadmium		Total Chrome		Copper		Lead		Nickel		Zinc		pH Units
		liters	gal	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	
1. Aircraft Ramp [illegible]	aircraft	750	200	*	*	*	*	(13) 0.01	0.03	(13) 0.01	0.02	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.0-9.0
2. Aircraft Rebuilding and Overhaul																												
Engine Operations	engine	283,930	75,000	(15) 4.3	9.4	(75) 21.3	46.9	(15) 4.3	9.4	(10) 2.9	6.3	(0.1) 0.03	0.06	(.04) 0.01	0.02	(.11) 0.03	0.06	(.3) 0.09	0.19	(.2) 0.06	0.13	(.11) 0.03	0.06	(.5) 0.14	0.31	(.32) 0.09	0.19	6.0-9.0
Aircraft Operations (Exterior & Interior)	aircraft	3,111,000 311,100	822,000	(15) 46.8	103	(75) 234	514	(15) 46.8	103	(10) 31.2	68.6	(.1) 0.31	0.69	(.03) 0.08	0.17	(.1) 0.31	0.69	(.3) 0.94	2.06	(.2) 0.62	1.37	(.1) 0.31	0.69	(.5) 1.56	3.43	(.3) 0.94	2.06	6.0-9.0
3. Aircraft Maintenance																												
[illegible]	aircraft	7,570	2,000	*	*	*	*	(15) 0.11	0.25	(10.6) .08	0.17	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.0-9.0
[illegible]	aircraft	30,300	8,000	*	*	*	*	(15) .45	1.0	(10) .30	0.67	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.0-9.0
4. Ground Vehicle Service and Maintenance	vehicle	37,850	10,000	*	*	*	*	(15) 0.57	1.25	(10) 0.38	0.83	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.0-9.0
5. Fuel Service Centers		Not an industrial waste source																										
6. Terminal and Related Facilities	***			30 mg/l		*	*	30 mg/l		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	6.0-9.0

* Not a control parameter for activity listed

*** Effluent limitations for wastes discharged from this activity are subject to treatment requirements established for municipal systems treating sanitary wastes

Numbers in ( ) are mg/1

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COMMENTS AND QUESTIONS

1. How sound are the estimates on flow?

2. Very little data on which to make evaluations of RWL or treatment effectiveness.

3. Surface area loadings of settling tanks are not given.

4. How sound are cost estimates?

5. Oil concentrations of 10 mg/l average cannot be verified because testing technique is not that precise.

6. Oil concentrations of less than 100 mg/l are not believed to be necessary when effluent is discharged to municipal treatment systems where the concentrated flow is 10% or less of the municipal flow.

7. Oil limitations for BPT for all segments will be more reasonable if 25 mg/l value is used.

8. Limits, for all segments, for suspended solids should all be the same and at 30 mg/l for BPT.

9. Limits for both COD and BOD are not necessary and if used they will be.

10. BAT limits foroils can not be reasonably set until the technique for monitoring low concentrations has been developed.

11. Suspended solids limitations for BAT should be the same for all segments with the value in the 10 to 12 mg/l range.

The Act states that best practical control technology currently available be based on the average of the best existing performances by plants of various sizes, ages, and unit processes within each industrial category. None of the recommended standards are based on this principle. Thus, BPT can not be considered as being coagulation, sedimentation, filtration, reduction of metalic ions by conversion to their hydroxide form, activated carbon adsorption, and other methods suggested in the proposed segments of the transportation industry.

Note:
Suggested editorial changes and questions about the meanings intended in various sections of the Contractor's Development Document have been indicated on the copy of the document being sent to the Effluent Guidelines Division for their consideration.

ES&WQIAC COMMENTS SUBMITTED BY
MEMBERS RAMON GUZMAN AND DON BLOODGOOD July 7, 1975

TRANSPORTATION
TRUCKING

GENERAL INFORMATION

21,000,000	Trucks and Buses
19,800,000	Private and For-Hire Trucks
300,000	School Buses
90,000	Commercial Buses
15,138	For-Hire Carriers, minority of trucking, may be 1/3.

CATEGORIES (Segments)(Subcategories)

1. Over-the-Road Hauling
2. Lubrication and Fueling
3. External Washing
4. Maintenance and Repair
5. Dry Freight Truck Interior Hauling
6. Tank Truck Interior Trailer Cleaning
7. Passenger Terminal
8. Freight Terminal

SIGNIFICANT WASTEWATER CONSTITUENTS

Constituent	Categories
Oil and Grease	2, 3, 4, 6, 8
Suspended Solids	2, 3, 4, 5, 6, 7, 8
Dissolved Solids	3, 4, 5, 6, 7, 8
Acid - Bases	3, 4, 5, 6
Oxygen Demanding	2, 3, 4, 5, 6, 7, 8
Nitrogen Compounds	5, 6
Detergents	3, 4, 5, 6, 7
Phenols	6
Cyanides	6
Metals	3, 4, 6
Bacteria	5

RAW WASTE LOADS

Table 8, Page V6 shows "order-of-magnitude" raw waste loads.

TABLE 8

ESTIMATED RAW WASTE LOADS PER UNIT OF ACTIVITY
TRUCKING SEGMENT OF TRANSPORATION INDUSTRY

	Over-the-road Hauling	Lubrication and Fueling	External Washing	Maintenance and Repairs	Dry Freight Truck Interior Cleaning	Tank Truck Interior Cleaning	Passenger Terminal	Freig Termin
Unit	*	Truck	Truck	Truck	Trailer	Trailer	--	--
Flow/Unit								
liters		40	1,135	40	760	400	**	***
gallons		10	300	10	200	900		
Oil								
kg		0.25 (6250)	0.5 (440)	0.2 (5000)	0.1 (131)	3.4		
lb		0.5	1	0.5	0.2	7.5		
Suspended Solids								
kg		0.05	4.5 (396)	2.3 (57500)	1.5 (2165)	3.4		
lb		0.1	10	5	3.5	7.5		
Dissolved Solids								
kg			5.7 (502)	0.1 (25000)	1.6 (2105)	41		
lb			12.5	0.2	3.5	90		
Detergents								
kg				0.005	0.1	.07		
lb				0.01	0.2	0.15		
Phenols								
kg						0.2 (58.8)		
lb						0.5		
BOD(5)								
kg		0.1	0.2 (76)	0.02	0.08 (105)	5 (1470)		
lb		0.2	0.5	0.04	1.7	11		
COD								
kg		0.03	0.6 (528)	0.05	0.23 (303)	51 (15000)		
lb		0.06	1.5	0.12	5.0	112		
Chromium								
kg						0.02 (5.9)		
lb						0.04		
Cyanide								
kg						0.003 (.9)		
lb						0.007		
Ammonia								
kg					0.1	0.2 (59)		
lb					0.2	0.5		
Phosphorus								
kg			0.02 (17.6)	0.002 (50)	0.03	0.03 (8.8)		
lb			0.05	0.004	0.07	0.07		
pH Units		6-9	8-10	8-10	8-10	10-12		
Bacteria org/100 ml					$10^5 - 10^6$			

* No industrial wastewater.
** Not calculated - should receive equivalent of municipal secondary treatment.
*** Not calculated - may include any or all of above plus sanitary wastes.

Numbers in ( ) are mg/l

TREATMENT TECHNOLOGY (See Effluent Concentration Table 11)

Primary Treatment
   Gravity Separation

Secondary Treatment of Oily Wastes (Primarily for mixed chemicals)
   Equalization
   Emulsion Breaking
   Dissolved Air Flotation
   Coagulation

Tertiary Treatment of Oily Wastes (Secondary for mixed wastes)
   Aerated Lagoon
   Trickling Filter
   Activated Sludge
   Activated Carbon Adsorption
   Granular Media Filtration
   Batch Treatment of Individual Waste Streams

DATA FROM

	Terminal A	Southeast Texas (Waste combined with---VII-19)
	Terminal B*	Southeast Texas (2 Ponds, 1 for "heels", 1 Spray Aerated)
	Terminal C	Southeast Texas (Spray evaporation pond)
	Terminal D*	Southeast Texas (3 Settling Tanks, Municipal Treatment)
	Terminal E*	Southeast Texas (3 Sedimentation Tanks)
	Terminal F*	Northern Midwest (Storage, pH adjust., alum, air float., sludge hauled, cost $100,000)
	Terminal G	Northern Kentucky (Holding tank, gatch treat., pH adjl, $FeSO_4$)
	Terminal H	Eastern Utah (Sett. Tank, reuse, no discharge anticipated)
**	Terminal I	Southern California (Holding tank skim. to municipal treat.)
***	Terminal J*	Southern California (Screening, settling to municipal sew.)
	Terminal K*	Northeastern Texas (Oil separation, to municipal sewer)

*no analytical data   ** COD & Susp. Solid, 1 Sample
*** ($60,000 to $70,000)

EFFECTIVENESS OF TREATMENTS

See Table 11, page VII-14 for expected effluents from Trucking facilities.

BPT and BAT

Tables 1 and 2 show BPT and BAT limitations suggested by the Contractor. The speculated concentrations have been calculated and added by the Committee reviewers.

TABLE 11

Lowest Effluent Concentrations Expected From Oily Waste Treatment Processes(16)

Process	Effluent Concentration, mg/l BOD(5)	COD	Suspended Solids	Oil	Phenol
API Separator	250	260	50	20	6
API Separator + Clarifier	45	130	25	5	10
API Separator + Dissolved Air Flotation	45	130	25	5	10
API Separator + Granular Media Filter	40	100	5	6	3
API Separator + Oxidation Pond	10	50	20	2	0.01
API Separator + Clarifier, Dissolved Air Flotation Granular Media Filter, Aerated Lagoon	10	•	10	5	0.1
API Separator + Trickling Filter	25	80	2,010	0.5	
API Separator + Clarifier, Dissolved Air Flotation Granular Media Filter, Activated Carbon	5	30	10	2	0.1

BPT

TABLE 1

PROPOSED EFFLUENT LIMITATIONS GUIDELINES PER UNIT
FOR BEST PRACTICABLE CONTROL TECHNOLOGY CURRENTLY AVAILABLE
TRUCKING SEGMENT OF TRANSPORTATION INDUSTRY (monthly averages)

Activity	Unit	Flow/unit		Oil		Suspended Solids		Phenols		BOD(5)		COD		Chromium		Cyanide		***	Fecal Coliforms
		liters	gal	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	pH Units	org/100 ml
Over-the-road hauling	No industrial wastewater																		
Lubrication and fueling	truck	40	10	.0005 (12.5)	.001	.001 (25)	.002	*	*	*	*	*	*	*	*	*	*	6.5-9.0	*
Exterior washing	truck	1,135	300	.015 (13.2)	.03	.02 (17.6)	.05	*	*	*	*	*	*	*	*	*	*	6.5-9.0	*
Maintenance and repair	truck	40	10	.0005 (12.5)	.001	.001 (25)	.002	*	*	*	*	*	*	*	*	*	*	6.5-9.0	*
Dry freight truck interior cleaning	trailer	760	200	.01 (13.1)	.02	.015 (19.7)	.03	*	*	.02	.05	.07	.15	*	*	*	*	6.5-9.0	200
Tank truck interior cleaning	trailer	3,400	900	.03 (8.3)	.07	.07 (60.4)	.15	.0005 (.15)	.001	0.1 (29.4)	0.2	1.0 (294)	2.2	.001 (.29)	.002	.0005 (.15)	.001	6.5-9.0	*
Passenger terminal	--	equivalent of municipal secondary treatment																	
Freight terminal	--	equivalent of municipal secondary treatment - may include any of above																	

* Not limited for listed activity.

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Numbers in ( ) are mg/l

*** Most pH limitations in guidelines have been 6.0-9.0

Reproduced from best available copy.

TABLE 2

PROPOSED EFFLUENT LIMITATIONS GUIDELINES PER UNIT
FOR BEST AVAILABLE CONTROL TECHNOLOGY ECONOMICALLY ACHIEVABLE
TRUCKING SEGMENT OF TRANSPORTATION INDUSTRY (monthly averages)

Activity	Unit	Oil		Suspended Solids		Phenols		BOD5		COD		Chromium		Cyanide		pH	Fecal Coliforms
		kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	Units	no/100 ml
Over-the-road hauling	No industrial waste water																
Lubrication and fueling	#40 truck	(5.0) .0002	.0005	(12.5) .0005	.001	*	*	*	*	*	*	*	*	*	*	6.5-9.0	*
External washing	#1135 truck	(6.2) .007	.015	(.9) .001	.0025	*	*	*	*	*	*	*	*	*	*	6.5-9.0	*
Maintenance and repairs	#40 truck	(6.0) .0002	.0005	(12.5) .0005	.001	*	*	*	*	*	*	*	*	*	*	6.5-9.0	*
Dry freight truck interior cleaning	#760 trailer	(6.6) .035	.01	(9.2) .007	.015	*	*	.012	.025	.035	.075	*	*	*	*	6.5-9.0	200
Tank truck interior cleaning	#3400 trailer	(2.9) .01	.02	(5.9) .02	.04	(.044) .00015	.0003	(5.9) 0.02	0.05	0.25	0.55	(.059) .0002	.0005	(.044) .00015	.0003	6.5-9.0	*
Passenger terminal	--	equivalent of municipal secondary treatment															
Freight terminal	--	equivalent of municipal secondary treatment - may include any of above															

*not limited for listed activity

Numbers in ( ) are mg/l

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COMMENTS AND QUESTIONS

1. How sound are the estimates on flow?
2. Very little data on which to make evaluations of RWL or treatment effectiveness.
3. Surface area loadings of settling tanks are not given.
4. How sound are cost estimates?
5. Oil concentrations of 10 mg/l average can not be verified because testing technique is not that precise.
6. Oil concentrations of less than 100 mg/l are not believed to be necessary when effluent is discharged to municipal treatment systems where the contributed flow is 10% or less of the municipal flow.
7. Oil limitations for BPT for all segments will be more reasonable if 25 mg/l value is used.
8. Limits, for all segments, for suspended solids should all be the same and at 30 mg/l for BPT.
9. Limits for both COD and BOD are not necessary, and if used, they will be confusing.
10. BAT limits for oils can not be reasonably set until the technique for monitoring low concentrations has been developed.
11. Suspended solids limitations for BAT should be the same for all segments with the value in the 10 to 12 mg/l range.
12. VI-4 states that physical chemical treatment for oil and suspended solids removal will precipitate some portion of the heavy metals. The presence of metals in amounts sufficient to require specific treatment are not known or expected. Thus, the use of metal as a control parameter is not considered necessary.
13. The use of chromium as defined in the effluent standards for BPT as indicated in Table I for interior cleaning of truck tanks should not be included. The reduction of the chromium would have to be attained by chemical treatment. A process to be used only to remove or reduce chromium would be needed at every facility.
14. Reused, treated wastewater effluents for all equipment washing and cleaning for BAT is considered impractical (II-5)
15. In Table IIa, when indicating maximum daily loading limits (II-6)--should indicate for how long.

NOTE; References in ( ), refer
to page number of Contractor's
Draft Development Document

16. The control of suspended solids thru required BPT and BAT would demand coagulation, sedimentation and filtration facilities. The suspended solids in the normal raw waste are not too high. Some suspended solids would be removed by air flotation and the API separators. It is not considered necessary that the guidelines should contain limitations for suspended solids for BPT.

17. Dry freight truck interiorcleaning BPT and BAT should not have BOD and COD as limitations. The primary source of BOD and COD is the oil, so says the report (page VI 2). Therefore, effective removal of oil and monitoring of its content in the effluent makes the use of BOD and COD as control parameters unnecessary.

18. The wastewaters are generally low in volume, installations are small, and pollutional impacts are small in comparison to other industrial pollution sources. (VII-1). Generation of wastewaters is not a continuous operation, thus, the use of biological methods as activated sludge and biofiltration is of doubious value. Wastewaters from an estimated 2/3 of the trucking installations are directed to municipal treatment systems.

19. The general practice among this industry is to discharge to holding ponds or lagoons, in some cases after being skimmed or having gone through oil separating devices. BPT should be directed to remove the oils by API separators and air flotation methods, and skimming and lagooning, as is being practiced at the present time. BPT should not include coagulation, sedimentation, filtration, evaporation, incineration, activated carbon adsorption, or such methods that cannot be considered as BPT because it is not being practiced by the industry. No facility in the whole country has an activated carbon column for the adsorption of the organic molecules contained in the oil.

20. The API separator can eliminate 50-75% of the oil present.

21. Secondary treatment of oily wastes (VII-5) should not be considered. There is no single facility utilizing the secondary treatment.

22. Tertiary treatment for the trucking segment of the indsutry (VII-[illegible]) should not be considered for BPT either.

23. Batch Treatment of individual wastestreams, (VII-13), indicates that the chromium wastes can be treated with sulfuric acid and sulfur dioxide to reduce hexavalent chromium to trivalent which can then be discharged for precipitation in the coagulation sedimentation systems described previously. The use of sulfuric acid and sulfur dioxide (or bisulfite) could increase the TDS to high levels. It is considered that the use of ferric chloride instead of the sulfuric acid and SO_2 or bisulfite is a much better choice.

NOTE: References in ( ) refer
to page number of Contractor's
Draft Development Document

24. The Development Document, page II-1, recommends, "All maintenance areas... be imperviously surfaced and drained to collection systems and the drainage be treated". We do not consider drainage treatment necessary; however, we do feel that it should go to an API separator and air flotation units.

25. II-3 of the Development Document says, "It is recommended that pretreatment of discharges for acceptance in publicly owned treatment plants include physical chemical systems that result in a neutral pH and the removal of oil, metal, cyanides, and other non-compatible pollutants." We are not in agreement on this statement. BPT should be limited to removal of oils. Metals, cyandies, BOD, COD, and suspended solids would require extensive treatment plants that are not considered practical for BPT.

26. The Act states that best practicable control technology currently available be based on the average of the best existing performances by plants of various sizes, ages, and unit processes within each industrial category. Thus, BPT can not be considered as being coagulation, sedimentation, filtration, reduction of metalic ions by conversion to their hydroxide form, actived carbon adsorption, and other methods suggested in the proposed segments of the transportation industry.

NOTE

Suggested editorial changes and questions about the meanings intended in various sections of the Contractor's Development Document have been indicated on the copy of the document being sent to the Effluent Guidelines Division for their consideration.

ES&WQIAC COMMENTS SUBMITTED BY
MEMBER BLAIR T. BOWER July, 1974

PULP, PAPER, AND PAPERBOARD INDUSTRY

In the WAPORA report on the Pulp, Paper, and Paperboard industry, dated July 1974, the following figures are mislabeled with the title, "water and waste balance". There is no "balance" in any of the figures; only outflows are shown. In no sense - dictionary or other - are these balances. An inexcusable misnomer!

24, 25, 26, 27, 28, 29, 30, 31, and 32

Also, I find two similar statements incomprehensible. First, on page 76, the report states, "it may be seen in Figure 22, that no correlation is apparent between number of machines and raw waste BOD load within the bleached draft segment which is used as an example." No statistical test of that assertion is presented, however. When one looks at Figure 22, there appears to be a trend line, although the correlation coefficient probably is not high. But, certainly it is not zero. The question is why should there be any correlation, given that number of machines implies replication of production lines. One likely answer is that the larger the number of machines, the wider the range of product mix being produced, which in turn, tends to increase the RWL, all other factors being equal.

Second, the same assertion is made on page 79 with respect to Figure 23, i.e., "This figure, drawn from data in Appendix L, demonstrates the apparent lack of correlation between age or size of the mill and raw waste BOD load." Again, no statistical analysis of this statement is presented. Looking at Figure 23, one agrees with the statement with respect to age of mill - with which there should be NO correlation. But, the data plotted for size of mill vs. BOD raw waste load suggest clearly a relationship. Even with the small sample I suspect the correlation coefficient would be fairly high. But again, the relevant question is, why is there such a correlation? I suggest the same reason as given for number of machines vs. raw waste BOD load, because size of mill and number of machines are, of course, directly correlated.

I hope the rest of the report is not as sloppy.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

August 23, 1[illegible]

MEMORANDUM

SUBJECT: Comments and Recommendations on the Contractor's Report on Phase II, Forming and Finishing Segment of Iron and Steel [illegible].

FROM : Effluent Standards and Water Quality Information Advisory Committee ([illegible] - Member)

TO : ESWQIAC Office

Comments

1. Solids for subcategories 9 and 10 seem high for BPT.

2. Costs per ton for subcategories 2,3,6,[illegible],9,11 seem to be high for BPT.

3. The zinc limitation for subcategory 15 seems high for BPT.

4. The tin limitation for subcategory 16 as expressed in Table 10[illegible] BPT is unreasonably low.

5. The cyanide limitation for subcategory 13 for BPT is extremely low for detection.

6. The reductions in waste flow for BAT for subcategories 1,2,3, 4,5,6,7,10,11 are possibly not attainable at reasonable costs.

7. The costs per ton for BAT for subcategories 2,4,6, and especially 8 may be prohibitively high.

8. The zinc limitation for subcategory 15 is high for a BAT limitation.

9. The lead limitation for subcategory 16 is high particularly for a flow as high as is indicated.

10. Is it reasonable to ask for a cyanide limitation in subcategory 18 of .05 BPT and .25 for BAT?

cc: Al Cywin

BPT- TABLE I

	mg/1				IRON mg/1					Chromium			
	Sus.Sol.	Oil/Grease	Gals. per	Cost/ton	Total	Ferrous	Soluble	Zinc	Lead	Total	Hexavalent	Tin	Cyanide
Hot Forming- Primary	50	15	700	.099	--	--	--	--	--	--	--	--	--
Hot Forming- Section	50	15	2500	.051	--	--	--	--	--	--	--	--	--
Hot Forming- Flat	50	15	3300	.624	--	--	--	--	--	--	--	--	--
Pipe & Tubes/Hot and Cold Worked	40	15	1500	.047	--	--	--	--	--	--	--	--	--
Batch Sulfuric Concentrated	50	--	10	.166	7	0.5	0.2	--	--	--	--	--	--
Batch Sulfuric Base	50	--	250	.510	7	0.5	0.2	--	--	--	--	--	--
Continuous Sulfuric Concentrated	50	--	25	.377	7	0.5	0.2	--	--	--	--	--	--
Continuous Sulfuric Rinse	50	--	500	.844	7	0.5	0.2	--	--	--	--	--	--
Batch Hydrochloric Concentrated	100	--	5	.757	15	3	2	--	--	--	--	--	--
Batch Hydrochloric Rinse	100	--	125	.205	15	3	2	--	--	--	--	--	--
Continuous Hydrochloric Concentrated	50	--	250	1.440	30	5	2	--	--	--	--	--	--
Continuous Hydrochloric Rinse	50	--	400	.159	7	0.5	0.2	--	--	--	--	--	--
Cold Rolling	25	15	240	.094	--	--	--	--	--	--	--	--	--
Coatings-Hot all hot coating operations	25	--	1000	.319	--	--	--	--	--	--	--	--	--
Coatings-Hot galvanizing only	--	15	--	--	--	--	--	--	--	--	--	--	--
Coatings-Hot Terne Coating only	--	--	--	--	--	--	--	--	0.5	--	--	--	--
Coatings-Cold all cold operation	25	15	1000	.330	--	--	--	--	0.2	3	.03	--	--
Coatings-Cold Tin coatings only	--	--	--	--	--	--	--	--	--	--	--	*.456	.05

BAT- TABLE II

	mg/l				Iron mg/l					Chromium			
	Sus.Sol.	Oil/Grease	Gals.	Dollars/ton	total	Ferrous	Soluble	Zinc	Lead	total	hexavalent	Tin	Cyanide
Hot forming-primary	10	10	100	.133									
Hot forming-section	10	10	250	.663									
Hot forming-flat	10	10	160	.301									
Pipe & Tubes/Hot & Cold worked	N.D	N.D	N.D	.713									
Batch Sulfuric Concentrated	N.D	N.D	N.D	.252									
Batch Sulfuric Rinse	N.D	N.D	N.D	1.077									
Continuous Sulfuric Concentrated	N.D	N.D	N.D	.620									
Continuous Sulfuric Rinse	N.D	N.D	N.D	3.333									
Batch Hydrochloric Concentrated	25	--	5	.001	7	0.5	0.2						
Batch Hydrochloric Rinse	25	--	125	--	7	0.5	0.2						
Continuous Hydrochloric Concentrated	N.D	N.D	N.D.	.008	N.D.	N.D.	N.D.						
Continuous Hydrochloric Rinse	10	--	400	.024	2	0.2	0.1						
Cold Rolling	20	10	25	---	--	--	--						
Coatings-Hot All hot coating operations	10	--	1000	.397	--	--	--						
Coatings-Hot Galvanizing only	--	10	---	--	---	--	--	2					
Coatings-Hot Terne Coating only	--	--	--	--	--	--	--	--	.25				
Coatings- Cold all cold operations	10	10	1000	.398	--	--	--	.1	.1	.1	.005		
Coatings- Cold Tin Coatings only	--	--	---	---	--	--	--	--	--	--	--	1.0	.25

Limitation in mg/l except for gallons and dollars

						Iron			Iron													
[illegible] TABLE III	[illegible]	Oil/grease	[illegible]	Oil/grease	Flow	Total	Ferrous	Soluble	Total	Ferrous	Soluble	Zinc	Lead	Zinc	Lead	Total	[illegible]	Tin	[illegible]	Tin	Lead	Total
Hot forming-Primary	72.2	65.0	99.21	[illegible].35	55.71																	
Hot forming-Section	72.2 *	65.0	99.71	99.43	96.79																	
Hot forming-Flat	72.2	65.0	99.67	99.76	97.61																	
Pipe and tubes/Hot & Cold worked	60.0	57.1	N.D.	N.D.	100																	
Batch sulfuric concen.	75.0	--	N.D.	N.D.	100	99.99	99.999	99.999	N.D.	N.D.	N.D.											
Batch sulfuric [illegible]	[illegible]	--	N.D.	N.D.	100	98.00	99.86	99.94	N.D.	N.D.	N.D.											
Continuous [illegible]	[illegible].59	--	N.D.	N.D.	100	99.98	99.999	99.999	N.D.	N.D.	N.D.											
Continuous [illegible]	[illegible].47	--	N.D.	N.D.	100	99.77	99.93	99.983	N.D.	N.D.	N.D.											
Batch hydrochloric concen.	[illegible].67	--	[illegible].67	--	0	[illegible].535	99.87	[illegible].994	99.9[illegible]	[illegible]	99.99[illegible]											
[illegible]	[illegible]	--	[illegible]	--	0	[illegible]	[illegible]	99.2	97.2	99.8	99.92											
[illegible]	[illegible]	[illegible]	N.D.	N.D.	100	99.99	99.995	99.99[illegible]	N.D.	N.D.	N.D.											
[illegible]	[illegible].67	--	[illegible].13	--	0	99.00	99.86	99.43	99.43	[illegible]	99.97											
[illegible]	[illegible]	99.33	[illegible]	9[illegible].33	0	--	--	--	--	--	--											
[illegible]	[illegible]	[illegible]	92.0	--	0	--	--	--	--	--	--											
[illegible]	[illegible]	[illegible]	--	73.33	0	-	--	--	96.67	--	--			98.67	--							
[illegible]	--	--	--	--	--	--	--	--	--	66.67	--			--	50.33							
Coating - cold [illegible] cold [illegible]	--	--	--	--	--	--	--	--	86.82	9[illegible]	99.94											
Coatings-[illegible] tin coatings only	92.00	62.5	99.56	75.0	0	--	--	--	97.0	98.40	99.98	97.35	76.19					[illegible]		[illegible]	[illegible]	[illegible]

*FLOW REDUCTION

ALL FIGURES PERCENT REMOVAL OR REDUCTION

PERCENT REMOVALS-TABLE III

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December 11, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Contractor's Report for Canned and Preserved Fruits and Vegetables.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

DRAFT DEVELOPMENT DOCUMENT
CANNED AND PRESERVED FRUITS AND VEGETABLES

General Information:

The Draft Development Document (D.D.D.) was prepared by SCS Engineers, 4014 Long Beach Boulevard, Long Beach, California.

The ES&WQIAC held a workshop on this point source category on July 9, 1974 and a report was prepared covering the topics covered and discussed.

The fruit and begetable processing industry provides a market for a large part of the nation's fruits and vegetables. Approximately 90 percent of the beets; 80 percent of the tomatoes; 75 percent of the asparagus, lima beans, and leafy vegetables; 60 percent of the green or snap beans, peas and sweet corn; and 50 percent of the peaches, and cherries are preserved by the industry.

The industry operates approximately 2000 plants and processes 30 million tons of raw fruits and vegetables annually. Individual plants range in processing volume from about 500 to 700,000 tons of raw commodity per year. The average industry employment is approximately 200,000, ranging from about 40 in the smallest plants to 4,000 in the largest.

On the average, where processing of raw foods is a part of the business community, approximately seven percent of the local work force is employed at least part-time by the processor. The industry's plants operate an average of eight months per year and process 75 percent of their raw product in four months for sales of about 5 billion dollars.

The D.D.D. further states that a telephone survey was made of the disposal methods used by states revealed that of 929 plants 409 discharge to municipal systems, 157 discharge to navigable waters and 363 discharge to the land.

Subcategories:

1. Added Ingredients
2. Apricots
3. Asparagus
4. Baby Foods
5. Beets
6. Broccoli
7. Brussel Sprouts
8. Cranberries, Blueberries
9. Carrots
10. Cauliflower
11. Cherries, Sweet & Sour
12. Cherries brined
13. Corn
14. Corn Chips
15. Cranberries
16. Dehydrated Onions & Garlic
17. Dehydrated Vegetables
18. Dried fruit, prunes & Figs
19. Dry Beans, canned
20. Ethnic Vegetables, Chinese & Mexican
21. Grape Pressing
22. Grape Juice
23. Jams, Jellies & Preserves
24. Lima beans
25. Mayonnaise & Salad Dressing
26. Mushrooms
27. Olives
28. Onions (canned)
29. Peaches
30. Pears
31. Peas
32. Pickles, fresh pack
33. Pickles, process pack
34. Pimentos
35. Pineapples
36. Plums
37. Poto Chips

38. Prune Juice
39. Pumkin & Squash
40. Rasins
41. Sauerkraut, cutting
42. Sauerkraut, canning
43. Snap beans (green & wax)
44. Soups
45. Spinach & Leafy Greens
46. Strawberries
47. Sweet potatoes
48. Tomatoes, peeled
49. Tomato, products
50. Tomato- cheese - starch canned specialties
51. White potatoes, whole

Raw Waste Loads:

The raw waste loads are given for 50 of the 52 subcategories in mg/l and weight per ton for the constituents BOD and TSS. The subcategory not covered is "strawberries". There are 20 subcategories with raw waste loads established by data on two or less plants.

There may be an advantage in grouping some of the suggested subcategories where the BOD and suspended solids are in the same ranges. See Table I for tabulated data.

Pollution Parameters:

The pollution parameters listed for BPT and BAT are: BOD, TSS, oil and grease and pH.

All subcategories are limited to oil and grease discharges of 20 mg/l for both BPT and BAT. There are no apparent indications that grease and oil have been found in any quantity or concentration in the analyses given on raw wastes.

The pH limitations are the same as for many of the categories, 6.0 to 9.0.

Treatment Technologies:

The treatment technologies listed in the D.D.D. are:

1. In-Plant Controls
2. Screens
3. Land Treatment
4. Lagoons
5. pH Control
6. Gravity Separation
7. Air Flotation

8. Nutrient Addition
9. Trickling Filter
10. Activated Sludge
11. Sludge Digestion
12. Vacuum Filtration
13. Chlorination
14. Carbon Absorption
15. Electrodialysis
16. Reverse Osmosis
17. Multimedia Filters

Effluent Limitations:

The effluent limitations in mg/l have been computed and they are shown in Table II.

It would be very helpful in evaluating the guidelines if the information in Table II was shown in the Development Document.

Cost, Energy, and Non-Water-Quality Aspects:

There are 229 pages of the D.D.D. devoted to the costs of treatment by the various units for treatment. There is a need for an economic report that will show the costs for the attaining of the effluents indicated in Table II.

Comments and Recommendations:

1. The D.D.D. on page 15 shows 2,000 plants but Table 2 on page 19 shows 929 plants.

2. The sampling of two pineapple processing plants is hardly adequate for establishing raw waste loads. (pg. 358 of the D.D.D.)

3. The BOD and TSS concentrations for rasin processing wastes, pg. 363 of the D.D.D. have such a wide range and only 2 plants sampled leaves a question in the mind of the reviewer whether there should be additional subcategorizations.

4. Additional information on raw waste loads for soup processing is needed. (see pg. 368 of the D.D.D.)

5. Table V of the D.D.D. (pg. 370?) is missing. Is it on strawberry processing wastes?

6. Tables or page numbers in D.D.D. are not in agreement for pages 372, 373 and 374.

7. Tables on page numbers in D.D.D. are not in agreement for pages 335 and 336.

8. Often in the tables of the D.D.D. for raw waste load there are fewer plants for the flows than there are BOD_5 or suspended solids. what flow figures are then used to get the concentration?

9. It would appear to be unreasonable to establish a subcategory without information on the raw waste load.

10. It would appear to be unreasonable to establish a subcategory based upon data from two or less plants.

11. Table 67, page 332, maximum BOD should probably be 376 mg/l instead of 92 mg/l.

12. Might it be advisable to groups some of the subcategories according to ranges of BOD and suspended solids. Suggested possible ranges are: BOD 150 to 300, 300 to 600, 600 to 1,000 mg/l.

13. It will be an undue burden to require this industry to monitor for oil and grease except in special instances.

14. The effluent limitations in mg/l should be shown in the Development Document.

15. The advisability of permitting an effluent BOD limitation for BPT over 100 is questioned.

16. The advisability of permitting an effluent BOD limitation for BAT of over 50 mg/l is questioned.

17. There is a need for a summary on costs that will show what it costs to attain the effluents required by the BPT and BAT limitations.

Attachment.
TABLE I and TABLE II

cc: Director, Effluent Guidelines Division

RAW WASTE LOADS
CANNED & PRESERVED FRUITS & VEGETABLES IN mg/l

TABLE I

Subcategory	BOD LOG MEAN	MIN	MAX	TSS LOG MEAN	MIN	MAX
1. Added Ingredients						
2 Apricots	363	123	1070	133	33	387
3. Asparagus	67	25	179	70	43	114
4. Baby Foods	524	422	650	232	101	533
5. Beets	3470	1500	8000	1260	367	4330
6. Broccoli	284	169	477	214	100	455
7. Brussels Sprouts	110	89	137	221	29	1680
8. Caneberries & Blue.	458	264	376	99	53	184
9. Carrots	1130	644	2160	636	262	1540
10. Cauliflower	86	42	174	46	18	113
11. Cherries	1170	598	2290	77	48	125
12. Cherries (brined)	2210	1030	4780	107	87	130
13. Corn	1830	514	6490	524	131	2470
14. Corn chips	2050			1650		
15. Cranberries	639	493	828	55	36	84
16. Dehy. Onions & Garlic	360	288	449	361	168	778
17. Dehy. Vegetables	387			304		
18. Dried Fruit	708	152	3290	69	8	568
19. Dry Beans (canned)	556	196	1580	178	81	393
20. Ethnic Veg.	528	336	828	186	140	246
21. Grape Proc.	1180	609	2250	219	91	530
22. Grape Juice	1180	644	2180	222	216	228
23. Jams, Jellies & Pres.	2250	1150	4410	465	364	711
24. Lima beans	314	102	968	220	83	584
25. Mayonnaise	2900	2170	2610	1160	399	1510
26. Mushrooms	187	26	1350	125	33	467
27. Olives	400			400		
28. Onions (canned)	1420	1060	1910	425	175	1030
29. Peaches	1200	743	1940	409	164	1020
30. Pears	1270	440	3520	242	84	702
31. Peas	811	272	2420	331	77	673
32. Pickles, fresh pack	2090	299	15100	506	42	6130
33. Pickles, process pack	1440	1100	1850	219	84	574
34. Pimentos	948	814	1100	100	85	119
35. Pineapple Can.	190	7	4920	99	8	1160

RAW WASTE LOADS (CONT.)

6. Plums	1130	248	1500	106	60	187
7. Potato chips	1870	1330	2650	2330	1450	3910
38. Prune juice	343	168	698	159	153	165
39. Pumpkin & Squash	1220	362	4140	544	185	1600
40. Raisins	420	19	9110	159	7	5290
41. Sauerkraut, cutting	842			143		
42. Sauerkraut, canning	1100	1060	1140	278	213	363
43. Snap beans	216	118	395	162	76	348
44. Soups	492			365		
45. Spinach [illegible]	172	81	368	89	19	419
46. Strawberries						
47. Sweet potatoes	8040	5500	11800	7010	4010	12200
48. Tomatoes, peeled	487	303	783	600	280	1250
49. Tomato, product	356	229	554	777	512	1150
50. Tomato-concentrate	490	212	1110	279	109	715
51. White potatoes, whole	3750	1680	8900	6540	1660	24500

TABLE II

EFFLUENT LIMITATIONS

		BPT				BAT			
	L/kkG	Max Monthly mg/l		Daily Max mg/l		Max Monthly		Daily Max	
Subcategory		BOD	TSS	BOD	TSS	BOD	TSS	BOD	TSS
1. Added Ingredients									
2. Apricots	29300	34	58	85	171				
3. Asparagus	35000	10	16	24	47	5	5	13	16
4. Baby Food	15200	44	71	104	209	20	20	49	55
5. Beets	8240	115	192	277	534	56	56	133	170
6. Broccoli	37100	32	54	79	153	18	18	43	51
7. Brussels Sprouts	34200	16	26	38	76	9	9	22	26
8. Caneberries & other berries	7130	41	64	98	196	20	20	48	56
9. Carrots	12200	70	115	164	319	29	29	70	82
10. Cauliflower	85200	13	21	30	59	7	7	16	21
11. Cherries	15400	58	91	143	273	25	24	58	65
12. Cherries (brined)	13100	122	191	282	534	50	50	102	145
13. Corn	7480	94	147	227	425	36	36	89	107
14. Corn Chips	10000	100	160	240	460	39	39	95	120
15. Cranberries	23100	48	78	112	216	22	22	52	60
16. Dehyd. Onions & Garlic	21400	37	61	89	177	19	19	44	56
17. Dehyd. Vegetables	24000	37	58	92	175	19	19	46	54
18. Dried Fruit	17900	50	78	123	234	22	22	53	67
19. Dry Beans (canned)	25500	42	71	106	212	21	21	49	64
20. Frozen Vegs.	13000	42	69	100	200	20	20	50	58
21. Grape Processing	1710	71	106	165	324	29	29	71	82
22. Grape Juice	5580	68	111	161	322	27	27	65	82
23. Jams, Jellies & Pres.	2770	100	165	231	466	43	43	110	122
24. Lima Beans	35400	34	56	85	164	18	17	45	54
25. Mayonnaise & S.D.	1498	85	133	174	309	36	36	79	103
26. Mushrooms	25400	28	45	66	131	15	15	35	45
27. Olives	23300	39	62	91	177	19	19	47	52
28. Onions (canned)	20100	80	124	184	248	32	32	80	94
29. Peaches	17500	68	112	160	312	29	29	68	80
30. Pears	14500	76	117	172	345	29	29	67	83
31. Peas	25700	55	88	131	253	23	23	55	67
32. Pickles fresh pack	9360	101	160	246	470	40	40	96	107
33. Pickles process pack	15600	77	122	186	353	31	31	77	93
34. Pimentos	25800	59	94	142	272	26	26	62	76
35. Pineapples	13200	29	45	68	126	15	15	37	45

TABLE II (cont)

[illegible]	4250	66	100	154	307	25	25	64	80
Potato chips	6720	97	147	233	446	56	36	89	104
[illegible]	71300	21	34	50	98	19	14	34	41
[illegible] & Squash	12000	71	117	167	325	29	27	71	83
[illegible]	7510	37	62	91	177	19	19	46	54
[illegible]	1580	51	84	129	247	25	25	63	76
[illegible]	2670	65	104	163	300	27	27	65	79
[illegible]	13000	31	47	73	134	17	17	40	47
[illegible]	30600	42	68	101	196	20	20	46	59
[illegible]	70000	25	42	62	124	9	9	22	27
Spinach & String beans	5280	161	265	399	738	114	114	265	341
[illegible]	1640	41	65	97	175	14	19	42	40
[illegible]	6560	37	52	84	168	18	18	44	53
[illegible]	12700	43	71	102	205	20	20	47	59
[illegible]	17500	120	152	272	426	60	60	143	173

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December [illegible]

MEMORANDUM

SUBJECT: Comments and Recommendations on the Contractor's Report of the Draft Development Document for Steam Supply.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don F. Bloodgood

TO: ES&WQIAC Office

STEAM SUPPLY

General Information:

The Draft Contractor's Report (DCR) was prepared by Roy F. Weston, Inc.

ES&WQIAC held a workshop on Steam Supply.

The DCR does not give the magnitude of the problem by giving numbers of installations. The Contractors reports that on-site visits and interviews were made at approximately forty industrial sites throughout the United States.

Raw Waste Loads:

The sources of waste generation are:

1. Boiler blowdown (steam and mud drum)
2. Boiler - tube cleanings (water & fire tube)
3. Air preheater cleanings
4. Ash - sluicing wastewaters
5. Runoff from coal pile areas

The analyses of the 40 collected samples are said to be in Supplement B and it was not available to the reviewer.

Subcategories: (categories)

1. Steam Supply Category
    a. Continuous Discharges
    b. Intermittent Discharges
2. Noncontact Cooling Water Category
    a. Chemical Wastes
    b. Thermal Wastes

Pollution Parameters:

1. Flow
2. Total Suspended Solids
3. Total Phosphates
4. Iron
5. Copper
6. Total Chromium
7. Hexavalent Chromium
8. Zinc
9. Nickel
10. Free Available Chlorine

Treatment Technologies:

I. Phosphorus Removal
    a. Biological Utilization
    b. Chemical Precipitation
II. Suspended Solids Removal
    a. Gravity Settling
    b. Filtration
III. Chromium Removal
    a. Reduction & Chemical Precipitation
    b. Ion Exchange
IV. Heavy Metals (copper, zinc, and nickel) Removal
V. Chlorine Elimination
    a. Sodium Bisulfite
VI. pH Correction
    a. Neutralization
VII. Iron Removal
    a. Aeration with Precipitation with Lime Neutralization
VIII. Heat Removal
    a. Process Changes
    b. Application of a cooling device
        aa. Once - through cooling
        bb. Evaporative ponds and canals
        cc. Spray ponds and canals
        dd. Wet mechanical cooling towers
        ee. Wet-dry cooling towers
        ff. Natural draft towers
        gg. Dry cooling towers

- IX. Sludge Handling
  - a. Gravity thickners
  - b. Vacuum filtration
  - c. Centrifugation
  - d. Heat or Sludge drying
  - e. Incineration
- X. In-Plant Controls

Effluent Limitations:

Table IX-1 from the Contractor's report gives the limitations that he suggests for BPT for the Steam Category, chemical wastes. These are continuous discharges and intermittent discharges with subdivisions of Boiler Blowdown-Steam Drum Flow, Ash-Handling Wastewaters, Boiler Blowdown-Mud Drum, Cleaning Wastewaters and Runoff from Coal Storage areas.

In regard to the thermal wastes from steam supply the DCP says, "No limitation on thermal discharges have been established for Level I technology. This has been done in view of the following:

1. Section 316 (A) of the Act will preclude industry from meeting the 1977 deadline.
2. Water quality limitations will prevail in the absence of effluent limitations".

The BPT limitations recommended by the Contractor for Noncontact Cooling Water are given in Table IX-2.

The BAT guidelines and limitations recommended by the Contractor are:

[Steam Supply]

"Contaminant concentrations of the waste streams are initially relatively low in comparison to those amenable to control by BPCTCA. Because of this and the judgement that there is no economically feasible technology to reduce concentrations to levels lower than those obtained with BPCTCA, the best available technology economically achievable (BATEA) is identical to BPCTCA, i.e. equalization, pH adjustment, metal precipitation, solids separation and sludge disposal following dewatering.

BAT effluent limitations for the steam supply category are the same as BPT. The only exception to these limitations relates to heat, contained primarily in non-returned condensate and boiler blowdown."

[Noncontact Cooling Water Category]

Chemical Wastes

"On the basis of the logic presented under the Steam Supply Category, BATEA is equivalent to BPCTCA, and the required Level II effluent limitations are as shown in Table IX-2."

Thermal Wastes

"Waste heat generated by industry through such processes as power generations, process cooling and air conditioning must be dissipated to the environment. The principal acceptors of this heat are the atmosphere the nearby watercourse. If the watercourse is chosen, then there is technology (in the form of cooling towers, spray ponds, etc.) to redirect this heat to the atmosphere. However, to solve the heat dissipation problem, one must first determine the best recaptor. This is done by determining the quantity of heat requiring dissipation and comparing it to the general site characteristics, including water availability and impact on receiving waters."

Table X-1 from the Contractor's Report shows the BAT and New Source Limitations.

Comments and Recommendations:

1. Pages 4, 5 and 6 are missing from the Draft Contractor's Report.

2. Information on the number of installations is needed for a proper consideration of the problem.

3. Results of analyses on raw wastes are necessary to make a proper evaluation of the situation.

4. It is suggested that the Contractor's Report be modified to show Subcategories of the industry instead of "Categories" and divisions of the categories.

5. The placing of Wet Mechanical Cooling Towers on page VI is a heading comparable with Sludge Handling and Disposal, is probably an error. The whole page needs revision so that it is consistent with VII Control and Treatment Technologies.

6. It is believed that paragraph two page 139, line seven of the Contractor's Report should read "precipitation, solids separation....".

7. Further investigation of the use of sodium bisulfite for removal of chlorine residuals should be made before indicating that it is the only method for the purpose.

8. Great care must be taken if an item limitation is established.

9. It would seem that there now have been a sufficient number of guidelines and development documents prepared so that the more recent ones could conform to similar formats. Level I, and Level II designations are not usually used or understood. (See Table X-1)

10. Table X-1 lists BAT limitations for discharges, with zero discharge after promulgation of the guideline. This is unreasonable.

11. Explain what is meant by P.L. Section 316 (A) [there is no 316 (A)

there is a 316 (a)] of the Act will preclude industry from meeting the 1977 deadline".

12. Why not have the Contractors give their limitations as monthly average and maximum day?

13. Page 139 of DCR third paragraph first line stream should probably be steam.

Attachments.
Tables XI-1, XI-2 & X-1

cc: Director, Effluent Guidelines Division

Table IX-1

Effluent Limitations for Level I (BPCTCA)
Control and Treatment Technology

Steam Supply Categor

Source and Characteristics of Wastewater	Average[1] mg/l	Maximum[2] mg/l
CONTINUOUS DISCHARGES		
Boiler Blowdown-Steam Drum		
Flow	Average design flow rate, or 15% (by wt.) of actual steam production, whichever is smaller	
pH	within the range of 6-9 pH units	
Total Suspended Solids	50	100
Total Phosphates (as P)	2.0	5.0
Iron	0.3	1.0
Copper	1.0	2.0
Total Chromium	0.3	1.0
Hexavalent Chromium	0.05	0.1
Zinc	0.5	1.0
Nickel	1.0	2.0
Ash-Handling Wastewaters		
Flow	Actual average discharge, or $63 m^3$/metric ton (15,000 gal/ton) of ash conveyed, whichever is smaller	
pH	within the range of 6-9 pH units	
Total Suspended Solids	50[3]	100[3]
INTERMITTENT DISCHARGES		
Boiler Blowdown-Mud Drum		
Flow	Actual flow, or 0.1% of steam drum blowdown flow, whichever is smaller	
Other Parameters	As required for Boiler Blowdown Steam Drum	
Cleaning Wastewaters		
Flow	Actual flow, or 1.67 liters/kg of steam/hr (0.2 gal/lb of steam/hr) precleaning, whichever is smaller	
Other Parameters	As required for Boiler Blowdown Steam Drum	
Runoff from Coal Storage Area		
Flow	Actual flow from coal storage area	
pH	within the range of 6-9 pH units	
Total Suspended Solids	50	100

[1] Monthly average concentration
[2] Discharge concentration shall not exceed values presented at anytime
[3] Above intake concentration

Notes

A Effluent loadings from Steam Supply operations in kg/day (lbs/day) will be equal to the product of flow times the respective concentration limit (incorporating appropriate conversion units). Should a plant treat these wastewaters in their general industrial wastewater treatment facility, this facility should receive an additional loading allocation equivalent to this product.

B For industries where effluent limitations for the above presented parameter(s) are more restrictive than presented above, those limitations should apply also to Steam Supply operations.

NOTICE: THESE ARE TENTATIVE RECOMMENDATIONS BASED UPON INFORMATION IN THIS REPORT AND ARE SUBJECT TO CHANGE BASED UPON COMMENTS RECEIVED AND FURTHER INTERNAL REVIEW BY EPA

Table IX-2

Effluent Limitations for Level I (BPCTCA) Control and Treatment Technology

Noncontact Cooling Water Category

Source and Characteristics of Wastewater	Average[1] mg/L	Maximum[2] mg/L
CHEMICAL WASTES		
Once-through discharges		
Free available Chlorine[3]	0.2	0.5
Cooling Tower Blowdown[4]		
Flow	Actual average blowdown flow	
pH	Within the range of 6-9 pH u	
Total Suspended Solids	50[5]	100[5]
Total Phosphates as P	2.0[5]	5.0[5]
Total Chromium as Cr	0.3	1.0
Hexavalent Chromium as Cr(+6)	0.05	0.1
Total Zinc as Zn	0.5	1.0
THERMAL DISCHARGES	No effluent limitations for Level I	

[1] Monthly average concentration

[2] Discharge concentration not to exceed volume presented at any time

[3] Unless it is demonstrated more chlorine is required to affect control

[4] Effluent loadings in kg/day (lb/day) will be equal to the product of flow times the respective concentrations limit (incorporating appropriate conversion units). Should a plant treat these wastewaters in their general industrial wastewater treatment facility, this facility should receive an additional loading allocation equivalent to this product.

[5] Above system raw water make-up concentration

Note:

For industries where effluent limitations for the above-listed parameter(s) are more restrictive than presented above, those limitations should apply also to noncontact cooling water discharges.

Table X-1

Effluent Limitations for Level II (BATEA)
and Level III (New-Source Performance Standards)
Control and Treatment Technologies

Source and Characteristic of Wastewater	
STEAM SUPPLY CATEGORY	
Chemical	Same limitations as for Level I (see Table IX-1)
Thermal	Same limitations as shown below for Noncontact Cooling Water Category
NONCONTACT COOLING WATER CATEGORY	
Chemical	Same limitations as for Level I (see Table IX-1)
Thermal	

Date Placed in Service	Unit Limitations		System Limitations		
	0-60 10^6 Btu/hr	> 60 10^6 Btu/hr	≤ 100 10^6 Btu/hr	100-900 10^6 Btu/hr	> 900 10^6 Btu/hr
Before 1/1/70	NL[1]	NL	NL	NL	NL
Between 1/1/70 and 1/1/74	NL	NL	NL	NL	ZD[2]
After 1/1/74 but before publication of guidelines	NL	ZD	ZD	ZD	ZD
After publication of guidelines	ZD	ZD	ZD	ZD	ZD

---

[1] NL - No effluent limitation

[2] ZD - Zero discharge of heat and provided an alternative technology for cooling exists, except for plants where

a. insufficient land is available for cooling purposes

b. total dissolved solids are greater than 30,000 mg/l and neighboring land is close enough to cause a significant drift problem

c. where a plume would affect an airport landing pattern

d. cold side blowdown is permitted in all cases

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

January 30, 197[illegible]

MEMORANDUM

SUBJECT: Comments and Recommendations on the Contractor's Report for the Draft Development Document for Coal Mining.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

COAL MINING

General Information:

It is said that "Wastes from coal mining are often unrelated, or only indirectly related, to production quantities. Therefore effluent limitations are expressed in terms of concentration rather than units of production."

More than 200 individual mine sites or coal preparation facilities in twenty-two coal producing states were visited by the contractor in preparing to write the report. The location areas are shown on maps in a very satisfactory manner.

The Western Region - (Northern Great Plains that extended into portions of Montana, Wyoming, and North Dakota) is a potential future leader in American coal production.

"One of the major deterrents to expansion of the coal industry is available facilities to transport the coal to the consumer. The present transportation system, particularly railroad systems, are operating at capacity."

The trend is to large operation production as the small mines are gradually forced to close due to more stringent environmental and safety restrictions.

The National Academy of Engineering concludes that if the coal industry is to double production by 1985 it will be necessary to:

1. Develop 140 new, 2 million ton per year underground mines in the eastern states.

2. Open 30 new, 2 million ton per year, surface mines in the eastern states and 100 new 5 million ton per year mines in the western states.

3. Recruit and train 80,000 new coal miners in the eastern states and 45,000 miners in the western states.

4. Manufacture 140 new, 100 cubic yard shovels and draglines.

5. Build 2,400 new continuous mining machines.

6. Construct 60 new, 2 million ton per year eastern rail-barge systems of 100 to 500 miles each.

7. Construct 70 new, 3 million ton per year western rail-barge systems of 1000 to 1200 miles each.

8. Build 4 new 25 million ton per year slurry pipelines of 1000 miles each.

9. Install two new 2.5 billion cubic deet per day gas pipe lines of 1000 miles each.

10. Manufacture 8000 new railroad locomotives and 150,000 new gundola and hopper cars.

There are two segments of the coal industry-coal mining and coal processing.

Forty-nine percent of the betuminous coal produced in coal production (1971) was mechanically cleaned.

It was determined that rank of coal type of mine and mine size did not significantly affect the chemical characteristics of raw mine drainage.

Of the more than 150 coal preparation facilities utilizing wet cleaning processes investigated during the study (either through site visits or industry supplied data), over 60% had closed water systems.

Categories:

1. Acid or Ferruginous Raw Mine Drainage
2. Alkaline Raw Mine Drainage
3. Coal Preparation Plant Wastewater
4. Coal Preparation Ancillary Wastewater

Pollution Parameters:

1. Acidity
2. Total iron
3. Dissolved iron
4. Manganese
5. Aluminum
6. Nickel
7. Zinc
8. TSS
9. TDS
10. Sulfates
11. Ammonia
12. Fluoride
13. Strontium

Raw Waste Loads:

Maximum, minimum, mean and standard deviations are given in concentrations for underground alkaline waters, underground acid waters, acid surface mine waters, alkaline surface mine waters and coal preparation plant waters.

Effluent Limitations:

See Tables 32, 33, 34.

Comments and Recommendations:

1. Page 1, 3rd paragraph, 3rd line pH.

2. Page 2, 7th paragraph, last line, "hot acidity" should be in the glossary.

3. Page 5, 2nd paragraph, 5th line, "raw water quality" should be "raw waste from the ---".

4. Where ever Level I, Level II and Leval III should be changed to BPT, BAT and New Sources.

5. Page 6, 1st paragraph, 17th line, it would be well if raw waste was not indicated as "effluent". Effluent is usually the discharge after treatment.

6. Page 8, paragraph 3, line 2, how long is "several days"?

7. Is all of the description of coal mining and coal mining techniques essential for the development of the guidelines? See the Contractor's Report, pages 28 to 33.

Table 32

EFFLUENT LEVELS ACHIEVABLE THROUGH APPLICATION OF THE BEST PRACTICABLE CONTROL TECHNOLOGY CURRENTLY AVAILABLE

Parameter	Bituminous, Lignite, and Anthracite Mining Services				Bituminous, Lignite, and Anthracite Mining			
	COAL PREPARATION PLANT EFFLUENT		COAL PREPARATION ANCILLARY EFFLUENT		ACID OR FERRUGINOUS MINE DRAINAGE		ALKALINE MINE DRAINAGE	
	30 Day Average	Daily Maximum	30 Day Average *	Daily Maximum *	30 Day Average *	Daily Maximum *	30 Day Average *	Daily Maximum *
pH	No Discharge of Process Water	No Discharge of Process Water	6–9	6–9	6–9	6–9	6–9	6–9
TOTAL IRON			3.5	7.0	3.5	7.0	3.5	7.0
DISSOLVED IRON			0.30	0.60	0.30	0.60	0.30	0.60
ALUMINUM			2.0	4.0	2.0	4.0	2.0	4.0
MANGANESE			2.0	4.0	2.0	4.0	2.0	4.0
NICKEL			0.20	0.40	0.20	0.40	0.20	0.40
ZINC			0.20	0.40	0.20	0.40	0.20	0.40
TOTAL SUSPENDED SOLIDS			35	70	35	70	25	50

* All values except pH in mg/l.

NOTIC[illegible] recommendations based upon information in this report and [illegible] based upon comments received and further review by [illegible]

Table [illegible]

EFFLUENT LEVELS ATTAINABLE THROUGH APPLICATION OF THE BEST AVAILABLE TECHNOLOGY ECONOMICALLY ACHIEVABLE

Parameter	Bituminous, Lignite, and Anthracite Mining Services				Bituminous, Lignite, and Anthracite Mining			
	COAL PREPARATION PLANT EFFLUENT		COAL PREPARATION ANCILLARY EFFLUENT		ACID OR FERRUGINOUS MINE DRAINAGE		ALKALINE MINE DRAINAGE	
	30 Day Average	Daily Maximum	30 Day Average *	Daily Maximum *	30 Day Average *	Daily Maximum *	30 Day Average *	Daily Maximum *
pH	No Discharge of Process Water	No Discharge of Process Water	6-9	6-9	6-9	6-9	6-9	6-9
TOTAL IRON			3.0	6.0	3.0	6.0	3.0	6.0
DISSOLVED IRON			0.30	0.60	0.30	0.60	0.30	0.60
ALUMINUM			2.0	4.0	2.0	4.0	2.0	4.0
MANGANESE			2.0	4.0	2.0	4.0	2.0	4.0
NICKEL			0.20	0.40	0.20	0.40	0.20	0.40
ZINC			0.20	0.40	0.20	0.40	0.20	0.40
TOTAL SUSPENDED SOLIDS			20	40	20	40	20	40

* All values except pH in mg/l.

NOTICE: [illegible] information in this report [illegible] subject to change based upon [illegible] received and further review by EPA.

Table 34

NEW SOURCE PERFORMANCE STANDARDS

Parameter	Bituminous, Lignite, and Anthracite Mining Services				Bituminous, Lignite, and Anthracite Mining			
	COAL PREPARATION PLANT EFFLUENT		COAL PREPARATION ANCILLARY EFFLUENT		ACID OR FERRUGINOUS MINE DRAINAGE		ALKALINE MINE DRAINAGE	
	30 Day Average	Daily Maximum	30 Day Average *	Daily Maximum *	30 Day Average *	Daily Maximum *	30 Day Average *	Daily Maximum *
pH	No Discharge of Process Water	No Discharge of Process Water	6-9	6-9	6-9	6-9	6-9	6-9
TOTAL IRON			3.0	6.0	3.0	6.0	3.0	6.0
DISSOLVED IRON			0.30	0.60	0.30	0.60	0.30	0.30
ALUMINUM			2.0	4.0	2.0	4.0	2.0	4.0
MANGANESE			2.0	4.0	2.0	4.0	2.0	4.0
NICKEL			0.20	0.40	0.20	0.40	0.20	0.40
ZINC			0.20	0.40	0.20	0.40	0.20	0.40
TOTAL SUSPENDED SOLIDS			35	70	35	70	25	50

* All values except pH in mg/l.

NOTICE: These are tentative recommendations based upon information in this report and are subject to change based upon comments received and further review by EPA.

8. Page 42, 6th paragraph, 2nd line, is ("freezing of particles") correct or should it be (freeing of particles)?

9. Page 50, last two lines, "Effluent" should probably be "Wastewater" and spelled as one word as is present day practice.

10. Page 48, what is the reasoning for establishing the dividing line between small and large plants at 150,000 tons per year?

11. Why are Indiana, and Illinois not more often discussed as coal producing states?

12. Page 56 note "plant effluent" should be "Plant Westewaterwater Discharge" to prevent confusion.

13. Page 57, 2nd paragraph, 11th line, the statement, "The operator's responsibility------further discussion" is not "clear cut" and does require further discussion.

14. Page 57 under Waste Characterization "Effluent" should be replaced with "Discharged Wastewater".

15. Page 61, 1st line under pH, Acidity and Alkalinity, 1st and 2nd line, "net acidity" should be in the glossary.

16. Page 62, under TSS, line 8, what is meant by "reduces water carrying capacity"?

17. Page 65, under ammonia, 2nd paragraph, the ammonia problem is treated much too lightly.

18. Page 65, specific conductance, is not detrimental to agricultural, numicipal or industrial water supplies or aquatic life. The materials measured by specific conductance are detrimental.

19. Figure 12 page 69 is not at all clear.

20. Page 70, under "Regarding" item 4 as expressed is not clear. Does it mean burying excavated materials that if left exposed will produce polluting materials?

21. Page 75, last line, "most toxic materials" should be in the glossary.

22. Page 77, 2nd paragraph, last 2 lines, oxidation is not responsible for most pollution formation, except in the coal mining industry.

23. Pages 78 through 91 sound as though they were copied from some where, they may not be an addition to the D.D.

24. Page 80, 2nd paragraph, 3rd line, slot chiseling, gouging and off set listering should be in the glossary.

25. Page 81, 5th line, why the 26 inch precipitation division line? Last line "contains sufficient moisture".

26. Page 82, 3rd paragraph, 1st line add-vertically "downward".

27. Page 89, under Plant Closure - etc. Why the use of "full ten years"?

28. Figure 20, page 93, the line slurry square should have an arrow indicating lime addition.

29. Pages 94, 97, 100, 103, 106, 109, 112, 118, 121, 124, 126, 149, 155 show tables where the chloride and fluoride concentrations are higher in the effluent than in the raw wastewater. Why is this true?

30. Page 119, 3rd paragraph, 6th line, "remove to" after enters.

31. Page 151, Figure 37. Drawings like this provide very little information.

32. Page 153, How long is a shift, how many shifts per day, how many days per week.

33. Page 163, Why not include chlorides as a parameter?

34. Page 167, 2nd paragraph, can you use raw wastewater to back wash the filters? 3rd paragraph, the filter rates seem high are they? 4th paragraph, 5th and 6th lines, "half of the plant's power demand". What plant? The treatment or coal processing plants?

35. Page 168, 2nd paragraph, lines 8 and 9, "more selective siting of both the mines dewatering points and treatment plan location" is not a very practical suggestion.

36. Page 172, Table 29. The 3 levels shown should be, possibly BAT, BPT and New Sources.

37. Page 181, paragraph 1, last two lines, it seems only fair to have 100% of the exemplary plants meet the limitations.

38. Page 181, paragraph 4 and 6, Level I should be changed to BPT supposedly.

39. Page 184, ordinate of graph is labeled incorrectly.

40. Page 185, ordinate of graph not labeled. Also check all labeling of ordinates on all graphs.

41. Pages 194, 195, and 196, all "Level II"s should be given the appropriate designations.

42. Page 195, 2nd paragraph 2 lines 5 and 6 the statement that "Reverse Osmosis is the most applicable" is questioned.

43. Page 199, last line, "Level II" should be changed to [illegible].

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

January 24, 1975

MEMORANDUM

SUBJECT: Comments and Recommendations on the Contractor's Report of the Draft Development Document for Clay, Ceramic, Refactory and Miscellaneous Minerals.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

Clay, Ceramic, Refactory and Miscellaneous Minerals

General Information:

The report includes the study of 13 clay, ceramic and refactory minerals of SIC categories 1452, 1453, 1454, 1455, 1459, 1496 and 1499.

The minerals studied are:

1. Bentonite
2. Fire Clay
3. Fuller's Earth
   A. Attapulgite
   B. Montmorillonite
4. Kaolin and Ball Clay
5. Feldspar
6. Kyanite
7. Magnesite (Natural Occurring)
8. Shale and Other Clay Minerals
   A. Shale
   B. Aplite
9. Talc, Soapstone, and Pyrophyllite

10. Natural Abrasives
    A. Garnet
    B. Tripoli
11. Diatomite
12. Graphite
13. Miscellaneous Non-metalic Minerals
    A. Jade
    B. Novaculite

Subcategories:

The draft report uses the words category and subcategory with different meanings than are or have been used in many of the guidelines for other industries. The subcategories (categories) are numbered instead of lettered as with many of the guidelines.

The Categories (Subcategories) selected by the Contractor are:

1. Bentonite
2. Fire Clay
3. Fuller's Earth
4. Kaolin and Ball Clay
5. Feldspar
6. Kyanite
7. Magnesite
8. Shale and Common Clay
9. Talc Minerals Group
10. Natural Abrasive
11. Diatomite
12. Graphite
13. Misc. Minerals

Raw Waste Loads:

The data collected at various production locations is presented but there is no summary indicating what the flow and load might be expected.

Pollution Parameters:

The parameters selected for the limitations are:

Analysis	
TSS	
Zinc	Wet Kaolin processing only
Fluorine	Wet Feldspar processing only
Manganese	Graphite processing only

Iron Graphite processing only
BOD Graphite processing only
COD Graphite processing only

Treatment Technologies:

1. Suspended Solids Removal
    a. Settling Ponds (unlined)
    b. Settling Ponds (lined)
    c. Chemical Flocculation
    d. Thickners and Clarifiers
    e. Hydrocyclones
    f. Tube and Lamella Settlers
    g. Filters
    h. Centrifuges
2. Neutralization
3. pH Control
4. Oxidation-Reduction Reactions
5. Precipitation

Effluent Limitations:

	BPT				BAT			
	TSS				TSS			
	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.
	mg/1							
340								
Fuller's Earth								
(Attapulgite)	50	250			no discharge			
3700			Zinc					
Kaolin Wet	27	135	.27	.54	16	81		
4300								
Ball Clay	.40	198			no discharge			
12640			Fluoride				Fluoride	
Feldspar Wet	47	237	11.9	23.7	47	237	7.9	15.8
no flow per prod.								
Talc Mineral Group			Where did the limitations come from.					
12500								
Garnet								
Natural Abrasives	32	160			20	100		
107000			Manganese					
Graphite	15	75	.28	2.3	Same for BAT			
			Iron					
			1.5	12	"	"	"	
			BOD_5					
			15	59	"	"	"	
			COD					
			22	70	"	"	"	

Recommended mine water discharges, TSS of 20 mg/1.

TABLE II-1 Recommended BPCTCA and BATEA for the Clay, Ceramic, Refractory, and Miscellaneous Minerals Segment of the Mineral Mining and Processing Industry (Process Water Only)

Subcategory	Recommended BPCTCA Guideline (kg/kkg) **		BPCTCA	Recommended BATEA Guideline (kg/kkg) **		BATEA
	TSS	other		TSS	other	
Bentonite	none	none	*1	none	none	Same as BPCTCA
Fire Clay	none	none	1	none	none	Same as BPCTCA
Fuller's Earth						
Attapulgite	0.017	none	2	none	none	2+12+8
Montmorillonite	none	none	3	none	none	Same as BPCTCA
Kaolin						
Dry	none	none	1	none	none	Same as BPCTCA
Wet	0.1	Zn 0.002	4,2	0.06	none	2+Sodium hydrosulfite as bleaching agent
Ball Clay	0.17	none	5;2 if wet scrubbers	none	none	Same as BPCTCA +recycle of scrubber water, where required
Feldspar						
Dry	none	none	11	none	none	Same as BPCTCA
Wet	0.6	F⁻ 0.15	8,7,2	0.6	F⁻ 0.1	Same as BPCTCA + additional F⁻ reduction
Kyanite	none	none	8;2	none	none	Same as BPCTCA
Magnesite (nat. occurring)	none	none	8;2	none	none	Same as BPCTCA
Shale	none	none	1	none	none	Same as BPCTCA
Aplite	none	none	8;2	none	none	Same as BPCTCA
Talc Minerals Group						
Dry	none	none	1	none	none	Same as BPCTCA
Ore Mining & Washing	none	none	8;2	none	none	Same as BPCTCA
Flotation	0.5	none	7;2 and/or 10	0.3	none	Same as BPCTCA +conversion to 5 +additional 2
Garnet	0.4	none	7;2	0.25	none	Same as BPCTCA +13 where necessary
Tripoli	none	none	1	none	none	Same as BPCTCA
Diatomite	none	none	9 and/or 8	none	none	Same as BPCTCA
Graphite	1.6	Mn 0.03 Fe 0.16 BOD 1.6 COD 2.3	7;2	Same as BPCTCA		Same as BPCTCA No proven technology exists to lower levels
Jade	none	none	2,9	none	none	Same as BPCTCA
Novaculite	none	none	3	none	none	Same as BPCTCA

* LEGEND

1	No process water used in mining or processing
2	Settling pond
3	Recycle scrubber water
4	Lime treatment (for zinc)
5	Dry bag dust collector
6	Segregation of plant waste streams
7	pH monitoring and adjustment
8	Recycle
9	Evaporation pond
10	Clarification pond
11	Natural evaporation
12	Flocculants
13	Sand bed filtration

**Kg/kkg of product in all cases except feldspar (wet) which is kg/kkg of ore processed

NOTICE: THESE ARE TENTATIVE RECOMMENDATIONS BASED UPON INFORMATION IN THIS REPORT AND ARE SUBJECT TO CHANGE BASED UPON COMMENTS RECEIVED AND FURTHER INTERNAL REVIEW BY EPA.

RECOMMENDED NEW SOURCE PERFORMANCE STANDARDS

Subcategory	Limitations kg/metric ton (lbs/ton) of product* Monthly average	 Daily maximum
Kaolin (wet)	Same as BATEA	Same as BATEA
Feldspar (wet)	TSS 0.4 (0.8)	2.0 (4.0)
	fluoride 0.05 (0.1)	0.1 (0.2)
Talc Minerals (Flotation)	Same as BATEA	Same as BATEA
Garnet	Same as BATEA	Same as BATEA
Graphite	Same as BATEA	Same as BATEA

* For feldspar (wet) only, the limitations are expressed as kg/metric ton (lbs/ton) of ore processed.

Capital Investment and Energy Consumption:

APITAL INVESTMENTS AND ENERGY CONSUMPTION OF PRESENT WASTEWATER REATMENT FACILITIES

ubcategory	Capital Spent Dollars	Present Energy Use - Kcal x 10^6	Total Annual Costs -$/kkg Produced	Percent of Selling price
entonite		No Waste Water		
ire Clay		No Waste Water		
ttapulgite)				
ontmorillonite)	$ 330,000	180	0.22	0.9
aolin (dry process)		No Waste Water		
aolin (wet process)	2,670,000	6,875	0.29	1.0
all Clay	335,000	825	0.26	1.5
eldspar (dry process)		No Waste Water		
eldspar (flotation)	1,000,000	4,950	1.65	10.2
yanite	375,000	830	2.83	4.0
agnesite	300,000	small	0.19	0.1
hale		No Waste Water		
plite	695,000	2,230	0.69	price unknown
alc minerals (dry)		No Waste Water		
alc minerals (wet				

washing)	335,000	1,670	1.09	3.2
Talc minerals (heavy media flotation)	450,000	2,500	1.09	3.2
Abrasives, Garnet	370,000	1,250	5.88	5.2
Abrasives, Tripoli	No Waste Water (except one scrubber)			
Diatomite	500,000	small	0.27	0.4
Graphite	<100,000	small	$20-25	<5
Jade	1,000	negligible	negligible	<0.1
Novaculite	negligible	negligible	negligible	<0.1
TOTAL	7,500,000	21,300	---	---

Comments and Recommendations:

1. The Development Document is well written and understandable.

2. Page III-14, 5th line from bottom of page first word should probably be "and".

3. Page III-25, 5th paragraph - "Emery was not considered further in this report because it was not deemed economically significant" - is not clear in meaning.

4. A map showing mine locations would be very helpful.

5. Page V-5, the line connecting roll mill and screens has arrows on both ends. Perhaps two lines are needed. Material cannot go both ways at the same time.

6. The number of plants and mines evaluated compared with the number of plants and mines in the Subcategory would be of great help.

7. Page V-15, 1st paragraph, 7th line. Is it true that the ammonium sulfate will settle?

8. Page V-20, the 1st tabulation last column, the "est." leave doubt regarding the numbers. What was the basis of the estimates?

9. Page V-25, line four. Do suspended solids settle in the pond or "into" the pond?

10. Page V-26, second paragraph of 3.5.1 third line, "data below", when it is not, might be, data as follows.

11. Page V-27, Figure V-3.5.1, the arrow from the magnetic separaor should be labeled to show what comes out.

12. Page V-30 first line "Versar" is not on the front cover and I never found the answer until reading the acknowledgments. Why not use Contractor? Next to last line "given below" and it is above.

13. Page V-37, Second paragraph of second line, the word recovery is not quite correct. Why not use removal?

14. Page V-38, 5th paragraph, second line is the spelling of "Herreshoff" correct?

15. Where does one find the meaning of HMS next to last line page V-38?

16. Page V-40, Figure V-3.7.1, the out flow of the tailings thickner, is the 40% solids the concentration?

17. Page V-41, 3rd line, 1st paragraph says average values, where they?

18. Page V-48, paragraph 3.4.1, 2nd line, what is a continuously cut sample? The 9th line says "ore is grinded" is this correct? The 13th and 14th lines "fluid energy" and "high energy levels" what is ment?

19. Page V-49, 2nd paragraph, 3rd line "use" should probably be "used" - 4th line, "fluid energy mills" and 5th line "non-recuperative" are not understood. The 12th line seems to indicate sludge from zeolite softners, this is not likely.

20. Page V-50, figure V-3.9.1, the vent of the dry collector should also indicate what is vented.

21. Page V-53, 1st and 2nd paragraphs, if no data was supplied and/or no data on production was confidental where did the effluent limitations come from?

22. Page V-53, last word on the page how can the data be below?

23. Page V-54, 2nd column of tabulated data, what are "negligible" mg/l of solids. Four plant show exactly 200 mg/l solids for all plants, this does not sound as through the results were from analytical analyses.

24. Page V-57, 1st paragraph, 11th line, "grinded" probably should be "ground". Last line "below" and there isn't anything.

25. Page V-62, 1st tabulation, how does one come up with a figure like ≤20 mg/l of TSS?

26. Page V-63, 3rd paragraph, 3rd line, "trumble" is not in the glossary.

27. Page V-66, paragraph 3.10.1.5, 3rd line, how does one estimate an average of 25 mg/l?

28. Page V-68, 1st and 2nd lines. The guidelines are not written to determine economic significance they should be written for guidance in permit writing. Where does the guidance for this segment come from?

29. Page VI-8, second paragraph, next to last line. Page 288 [illegible], Vol. I says 30 µg/l not 30 mg/l.

30. Page VII-5, 2nd paragraph, last two lines. If this is a technology transfer of zinc removal it should be more clearly stated. Should it say "is available to reduce zinc concentrations to ? mg/l"

31. Page VII-6, second paragraph, do you suggest building the ponds to find out if they will work?

32. Page VIII-10, Table VIII-2, waste load parameters (kg/metric ton of ? .)

33. Page VIII-12, *estimates. How does one estimate 5000, 2000, <50 mg/l?

34. Page VIII-22, waste load parameters (kg/metric ton of ? .)

35. Page VIII-30, next to last line, minerals "at" this report. What should it be?

36. Page IX-1, first paragraph, 6th line, "based on the average of the best existing performance" then leaves one helf of the best not in compliance. Something should be done about using this philosophy in setting guideline effluent limitations.

37. Page IX-4, 3rd paragrapn, should be reconsidered, particularly the last sentence.

38. Page IX-6, the 1st and 2nd paragraphs need to be more explicit.

39. Page IX-18, Reason for selection, 2nd line, a double is.

40. Page IX-30, why should total cost to the industry be used when it is so difficult to find the number of mines or processors in a category (Subcategory)?

41. Page IX-30, 1st tabulation and paragraph how were the reference data used?

42. Page X-5, 3rd paragraph, next to last line needs to be rewritten.

43. Page X-16, 1st paragraph, 1st line. Was it intended that it read "would not" as has been the case in all other similar paragraphs?

44. Page X-21, 1st paragraph, 2nd and 3rd lines. Does this statement conflict with the one made in the 2nd paragraph, 4th and 5th line of page X-20?

45. Page XI-3, tabulated data. Why are the limitations more strict for New Sources than for BAT?

cc: Director, Effluent Guidelines Division

COMMENTS & RECOMMENDATIONS AND DRAFT DEVELOPMENT DOCUMENTS

The following comments by ES&WQIAC pertain to draft development documents formulated by EPA for the cane sugar industry, the animal feed, breakfast cereal and wheat starch segments of the grain mills industry, auto and other laundries, and minerals mining and processing.

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ES&WQIAC COMMENTS SUBMITTED BY
MEMBER RAMON GUZMAN August 16, 1974

RAW CANE SUGAR (PHASE II)

SUBCATEGORY I

Sub-Category I refers to those plants which work not more than 120 days a year and are located in Louisiana.

BPT for BOD is 0.72 Kg/metric ton of can ground (1.44 lb/ton). A model plant is selected in order to determine the numbers for BPT and BAT, which are based on a flow of 4,833 gal/ton, BOD or RWL of 7.55 lb BOD per ton, and 70.1 lbs of SS per ton of cane ground.. Several treatment technologies are indicated - each one reducing certain percentage of RWL.

Most of the sugar mills in the State of Louisiana are impounding the process wastes except for the barometric condenser waters. The Contractor breaks up the reductions attainable through the several alternatives, starting with in house changes to reduce entrainment of the sucrose molecules in the barometric condenser waters to complete recycling of these waters. The approach is acceptable and logical. The treatest reduction is attained in the first alternative (B), by using effective entrainment equipment to reduce the loss of sugars.

Since this is the case and practice in Louisiana, a zero discharge approach for all stream flows, with the exception of the condenser barometric waters is logic being practiced. Thus, the BPT approach should be based on the barometric condenser waters. The Contractor uses a 100 mg/l BOD in these waters at the Model plant (RWL). In actual practice, at times there is much higher BOD in these waters because of equipment malfunctioning or high syrup levels. The Alternative B, which calls for improved entrainment separators, is based on a reduction from the 100 m/l in the Model plant to 15 mg/l. Of course, any plant manager at a cane-sugar plant is aware that the use of the entrainment could result in additional production of sucrose. Although the 15 mg/l is theoretically possible, the introduction of clandria type evaporator and vacuum pans in the sugar industry has allowed increased evaporation waters, but at the same time has increased the possibility of sugar entrainment in the condenser waters. This makes it difficult to attain the 15 mg/l concentration in these waters, as proposed by the Contractor. It very seldom happens in actual practice.

The data reported by the Contractor indicates that very few industries can attain the 15 mg/l limitation, in Louisian or in other sugar growing areas. Based on the studies by Hendrickson and Grillot (Raw Sugar Factories Wastes and Their Control) made in Louisiana and on data available from this industry, it is our opinion that the BOD remaining in the condenser waters should be based on 40 mg/l rather than 15 mg/l as proposed by the Contractor for BPT. The BOD reduction would be

$$\frac{4,681}{10^6} \times 100 \times 8.34 = 3.90 \text{ lb/ton}$$

$$4,681 \times 40 \times 8.34 = 1.61 \text{ lb/ton}$$

Reduction 2.29 lb/ton

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MODEL PLANT BOD

	Mg/1	kg/Kkg	
Condenser	100	1.95	
Wash, Cane	210	1.75	
Floor Wash	480	1.75	
Total RWL	187	3.78	= 7.55 lb/ton

ES&WQIAC is in agreement with Alternatives C, D, and E, which refer to holding ponds or aerated lagoons where enough land is available at a reasonable cost. Aerated lagoons are not extensively used in the cane mills operating in the locality of Category I, as it is the practice to retain the wastes for the whole period of grinding, thus attaining aerobic and anaerobic decomposition.

It is noticed that the Contractor does not recommend activated sludge or biofiltration for this type of waste. This was included in Phase I for BAT, but not in this Document. ES&WQIAC is of the opinion that the activated sludge plants should not be imposed in any industry whose operations are seasonal.

SUGGESTED CORRECTIONS

1. It is noticed that the limitation for SS for BAT is lower than for BPT. For example, BAT limitation is 1.23 kg/metric ton of cane ground, while the same figure for BPT is 1.00. This should be explained.

2. On page 5- of the development document it is indicated that the mean intake and total discharge are 3,600 and 3,880 gal ton of cane, respectively, while in the same page it indicates that "the amount of water used for condenser...averages 4,530 gallons per ton." This should be reviewed.

3. Estimated BOD of the floor and equipment washings does not appear correct, and in our opinion, should be reviewed. When the clarifiers are cleaned, the BOD could be as high as 50,000 mg/1. Floor washing is more between 1,000 and 3,000 mg/1, excluding equipment washing. It is noticed, for example, that in Subcategory II, the floor and equipment washingtin is reported by the Contractor as 11,700 mg/1. Since the floor washing figures are about the same for cane sugar factories in Subcategories 1 and 2, there seems to be no reason for this great difference in the concentration of this stream flow.

4. Table 13, Pollution Loadings, Columns 4, 5, and 6, appears to be in error.

ECONOMIC CONSIDERATIONS

Economical considerations are discussed by the Contractor. The total initial investment cost for Alternative A is $120,000, but after this cost, the cost goes exponential, as indicated in Figure 41. Thus, to attain approximately 80% reduction, as in Alternative D, it would cost $683,000. But, the total BOD reduction is 80.9% Thus since a reduction of 43.7% is obtained with a cost of $120,000, the extra 36% to be attained after Alternative B, is $564,000. For a typical 3,000 ton plant, the economic cost for the extra reduction after going exponential, would be as follows:

For a typical 3,000 tons/day cane sugar, at 7.55 BOD/ton
Total BOD is 22,650 lbs/RWL

Alternative	BOD Reduction, lbs.	Approximate Cost, $
A	0	120,000
B	9,900	120,000
C + D	8,400	684,000

It should be noticed that the cost of reducing the first 9,900 lbs. for the typical plant is $120,000 but the cost for reducing the next 8,400 is six-fold from the initial reduction of the first 9,900 lbs. It should be determined if the industry, in particular, could absorb this six-fold increase from the first reduction of clost to 10,000 lbs.

ESAWQIAC RECOMMENDATIONS

1. That the BPT be based on zero discharge for the process wastes (floor washings and miscellaneous as described by the Contractor) where land is available at a reasonable cost.

2. That the effluent guidelines limitation be based on a reduction of the barometric condenser waters to attain a 40 mg/l concentration based on the flow suggested by the Contractor in the Model plant. This is approximately 4,681 gallons per ton of cane ground.

It is not considered necessary that the boiler blowdown waters be impounded in a holding lagoon. These waters are mainly organic in nature. This has not been required in any other industry in the development of the effluent guidelines, and thus, the cane-sugar industry should not be the exception.

SUBCATEGORY II

This comprises those cane sugar factories operating more than 120 and less than 200 days. This includes plants in the States of Florida and Texas.

There are nine factories in this Subcategory. All, according to the Contractor, impound thier process waste with no discharge of wastes to the public streams. The barometric condenser waters, which comprise about 97% of the total stream flows, are recycled and used either for irrigation through channels or spray irrigation.

Since the practice of these nine factories is to attain zero discharge at the prsent time, as indicated by the Contractor, ESAWQIAC is in agreement with the zero discharge concept, in this particular case.

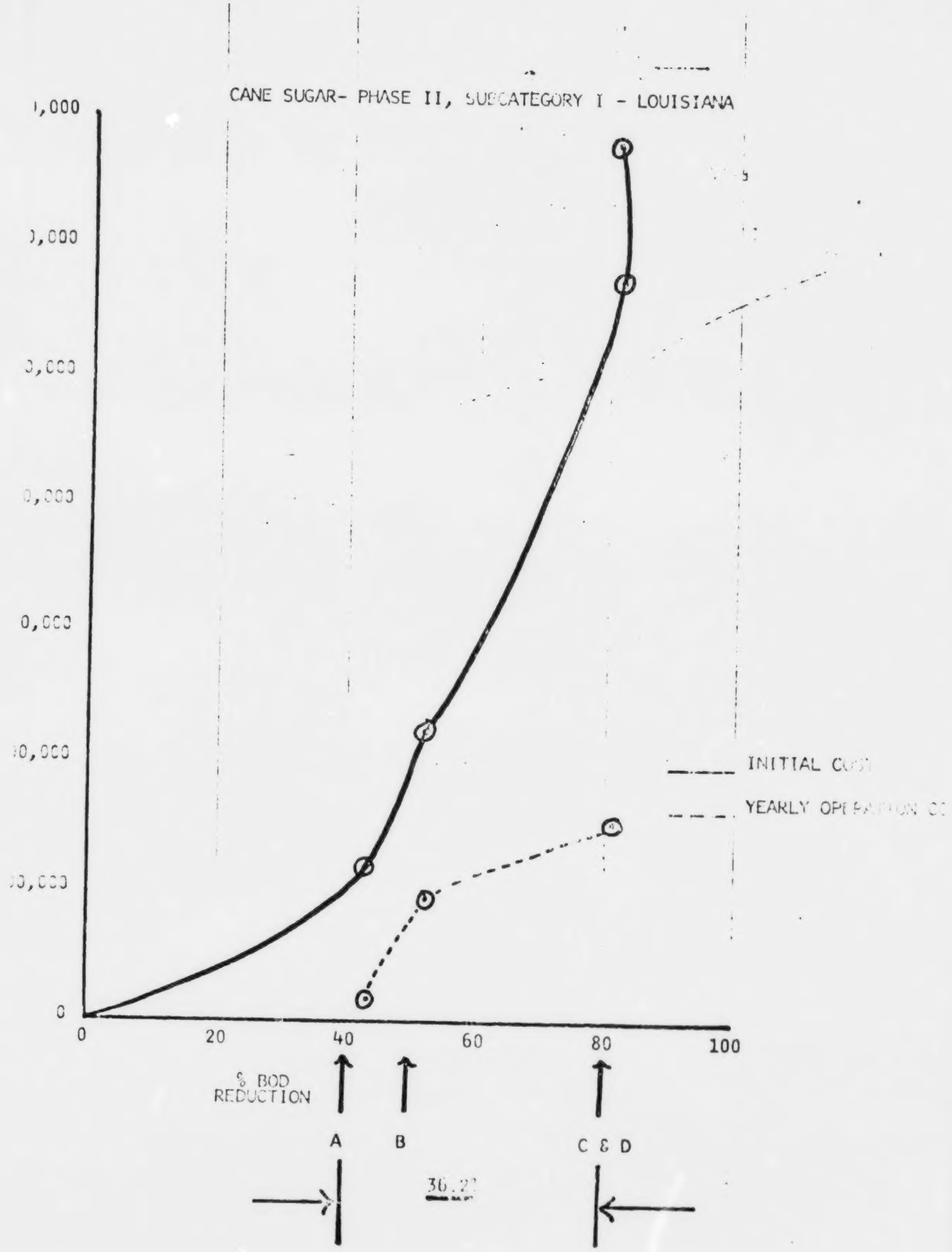
Before the final document is printed, we wish to suggest review on the following points:

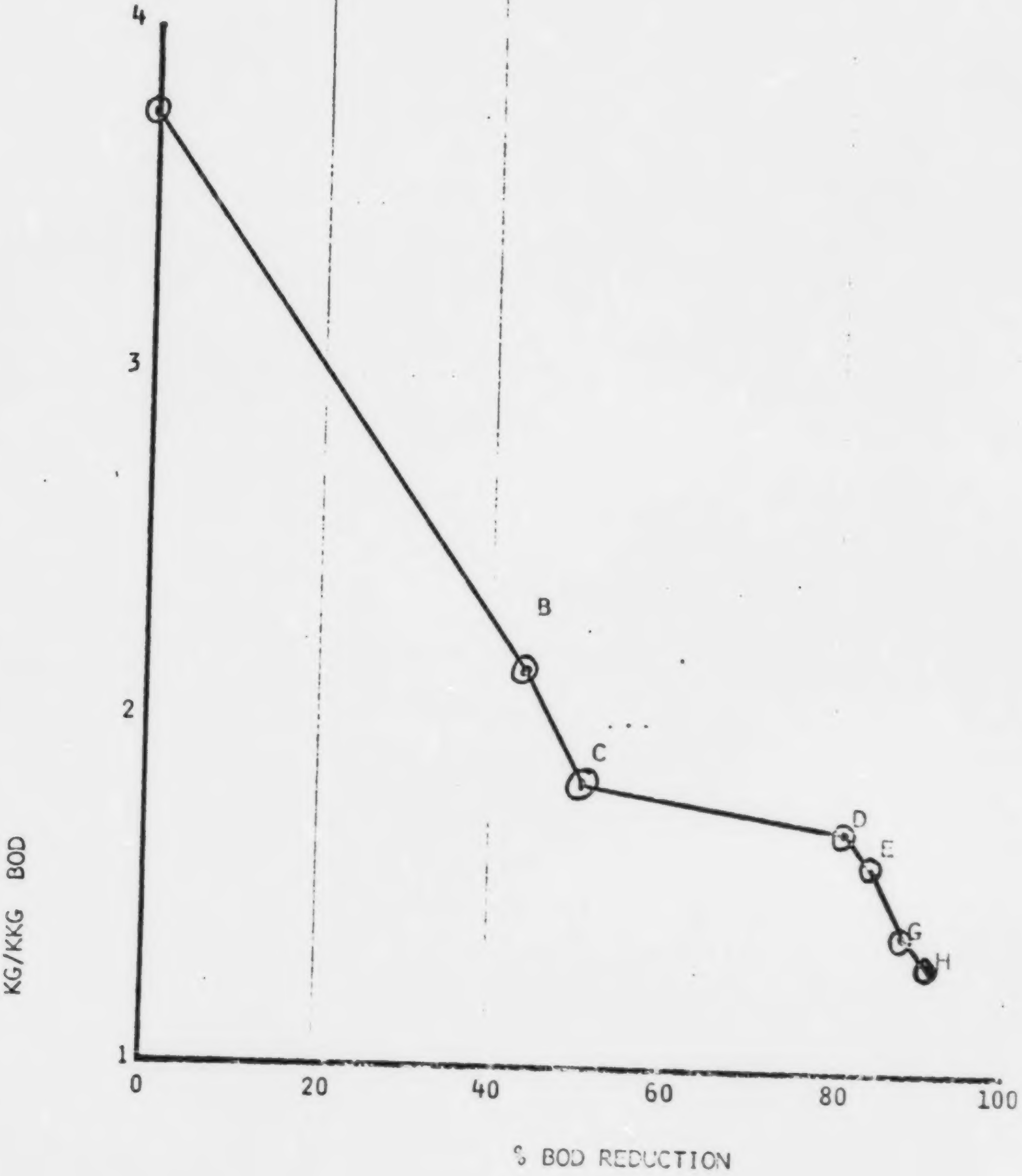
1. Floor and equipment washings are reported as 11,700 mg/1, but the model plant requires a BOD of 720 mg/l. This in-plant change should result in a reduction of 94%, which might be difficult to attain.

2. Excess condensate from the data available for this subcategory is 380 mg/1, but the Model plant requirement is 10. This reduction to be attained by in-plant changes amounts to 97%, which might be difficult to attain.

3. We suggest a review of the data on Table 17, which indicates that the excess condensate flow is zero, while the BOD is 380, COD is 1180, SS is 132. If there is concentration, there must be flow.

CANE SUGAR- PHASE II, SUBCATEGORY I - LOUISIANA




4
3
2
1
KG/KKG BOD
B
C
D
E
G
H
0
20
40
60
80
100
% BOD REDUCTION

SUBCATEGORY III

Sugar Factories located in Hawaii - Hilo Hamakaua Coast of the Island of Hawaii.

This subacategory presents very unique and special problems associated with geographical location, heavy reainfall at certain areas, proximity of the ocean, and others, and thus must have special considerations. As well, the economical problems of the Hawaiian sugar industry are to be especially considered.

Although the recommendations by the Contractor for these effluent guidelines are more liberal than those in subcategories I, II, IV, and V, the conditions are different. Rainfall is about 200 inches per year in this area. To request the use of clarification units at a cost of close to $5 million in an area like this merits a second thought.

Cost of Alternative B, which calls for the installation of a clarifier at a cost of close to $1 million, for reduction of mud and suspended solids, (whose origin is the soil itself), merits additional considerations. Even so, with the proposed clarifiers and the use of polymers, the reduction of SS is 25%, while the BOD is 17%. The legislative intent, as indicated in Section 304 of the Act, says that the reduction benefits should be considered against costs. The other alternative which also merits a second thought includes additional clarifiers. This will duplicate equipment, for the same purpose of reducing suspended solids, whose origin is the soil. This alternative runs close to $5 for a total reduction of 25% BOD.

The use of aeration basins as further recommended by the Contractor doesn't seem to apply throughtout the industry in these islands. Aerobic digester should not be included either.

The cost of attaining the relatively small reduction by the first three alternatives suggested by the Contractor merits a complete revision of this approach for this industrial segment.

ES&WQIAC is not in agreement with the recommendations of the Contractor for Subcategory III, and suggest a complete review of this approach, both for the reduction of BOD and SS, and for the economical considerations. It is highly improbable that effluent guidelines could be promulgated at a reasonable cost for the industry in this area of Hawaii where the total rainfall is 200 inches per year.

It must also be considered that the sugar industry is having economical difficulties. To add a burden of about $5 million, in initial costs, and several additional millions for yearly operation, may give a mortal blow to an industry which, at present, is experiencing serious economic difficulties.

BOD of the Model plant for barometric condenser waters is 10mg/l, which is extremely restrictive and unfair. It is four or five times below the practical concentration that should be imposed.

It is the opinion of ES&WQIAC that, for the cane sugar in Hawaii, the limitations should be based on reduction of barometric condenser waters' BOD to 40-50 mg/l, impounding of process waste, floor washing, and equipment washing in those areas with normal rainfall and where land is available at a reasonable cost. Restrictions should not be imposed in areas with the high precipitation, as it will serve no useful purpose and, have, in addition, a prohibitive price tag.

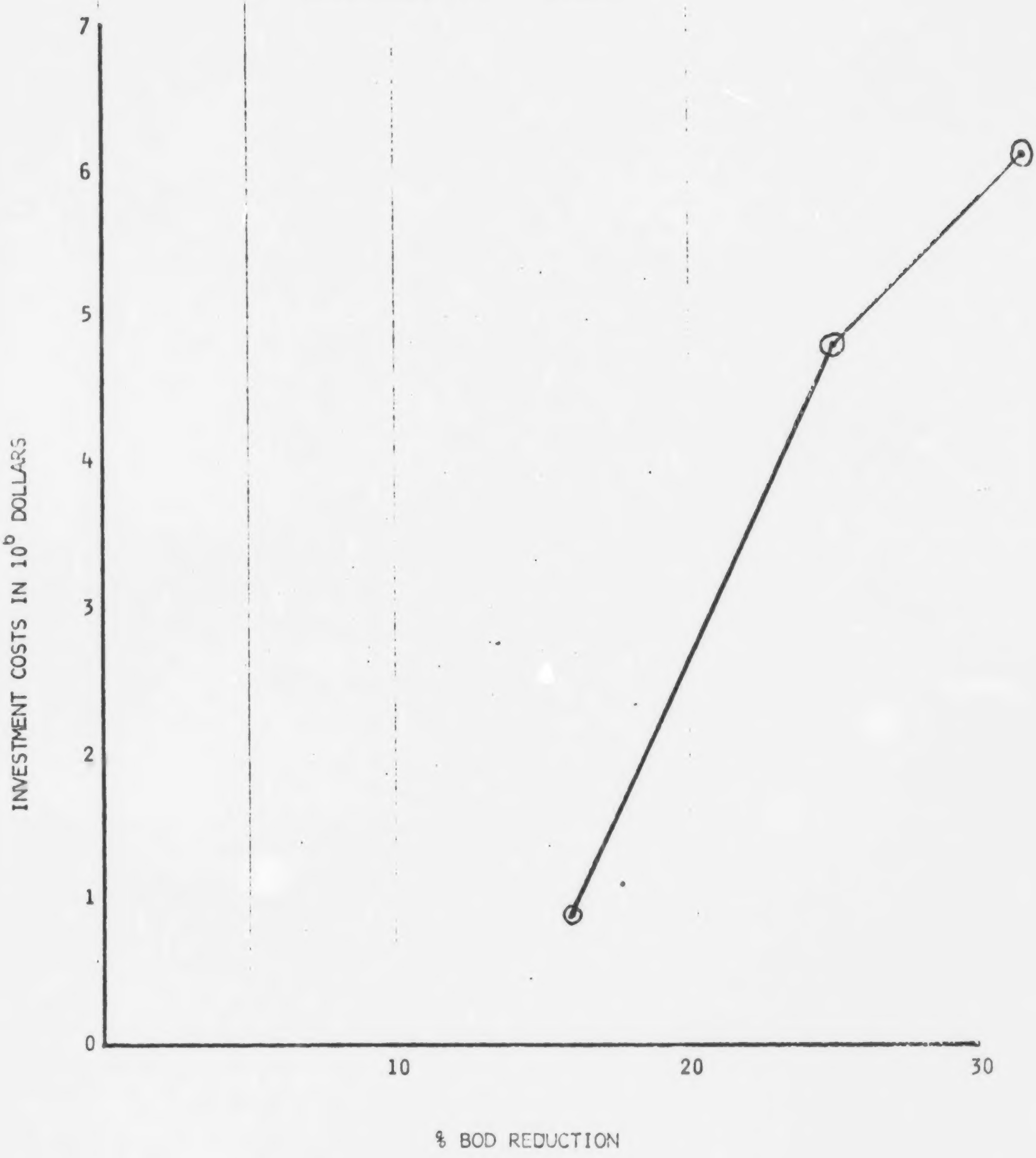
This is one of the few industries where the cost goes very high at the start and with very little reduction of the pollution parameters.

It is noticed that Alternative C, which itself will result in an initial cost of about $4 million, would reduce only 7.9% of the BOD.

Alternative F1, which includes the treatment of the settled effluent by the activated sludge process, raises the cost to a total investment of $8.8 million, which is proably more than the cost of the manufacturing plant, itself. Yearly cost would be $3.7 million, which must be higher than the profits, if any, that the sugar plant would have in its seasonal, yearly operations.

Economic considerations obviously must be reviewed with a different approach.

CANE SUGAR
PHASE II
SUBCATEGORY III - HAWAII



SUBCATEGORY IV

This subcategory includes all of the factories in the State of Hawaii except these in Subcategory III. Those sugar factories which operate for more than 200 days per year.

The sugar factories included in Subcategories II and IV would require zero discharge, as proposed by the Contractor. As in the case of Subcategory I, this is the actual practice at the sugar factories included in these categories, then the zero discharge concept seems logical. If this were not the actual practice for all the plants, then zero discharge concept for these categories, in BPT, should be re-evaluated.

SUBCATEGORY V

This includes the sugar factories in Puerto Rico.

On page 67, it is indicated that the condenser cooling waters are usually reused in cane washing, slurrying filter cake, and cleaning, while on page 97, it states that in Puerto Rico, most of the cooling waters are used in a once-through operation. The correct version is the latter; most plants use water in a once-through system.

The report indicates that wide variations exist within the sugar industry in Puerto Rico and that the industry is currently in a state of flux. Although not enough data has been gathered by the Contractor for this subcategory, as indicated in the report, the Contractor utilized the data of Subcatetory I to develop its Model plant. This assumption is not considered correct.

There are wide variations in the conditions affecting the sugar industry in Louisiana and in Puerto Rico. Geographical aspects have not been taken into consideration. While the cost of land in Louisiana is relatively low, in Puerto Rico it is very expensive. It is possible for the Louisiana sugar mills to have extensive lands for lagooning at low cost, but not in Puerto Rico where land is scarce and expensive.

The canesugar industry in Puerto Rico has been losing money year after year to the point that at the present time, there are only four plants in operation, all of which went into the "red" and had to be operated by the Government. The proposal for Alternative D to reduce 80.9% of the BOD at a cost of $2.06 millions should not be considered. In fact, the $2.06 million would be more than the actual cost of the sugar plant.

In Louisiana the land available could permit the holding of the entire waste generated during the crop, but this is not the reality in Puerto Rico. Rather than use the same criteria for Puerto Rico as in Louisiana, the Contractor should have considered Puerto Rico as a different region. Allowance should be given for a higher BOD discharge in Puerto Rico as compared to Louisiana because of land availability and costs. As not enough data was gathered by the Contractor for the study of the Puerto Rican cane factories, it is difficult for ES&WQIAC to evaluate this data.

Studies made by Biaggi and Guzman (References 3 and 20 of the Contractor's report) indicate that lagooning has been used in Puerto Rico which attained a reduction of BOD in the case of the process water wastes. Based on these studies, considerating limitations of land and the high costs, and the status of the industry in Puerto Rico, a recudction of 50-60% in these wastes seems more reasonable. The condensate waters' BOD could be reduced from the actual concentration to attain a limit of 40-50 mg/l. Based on the volume of the condenser waters, for which the once-through system is used, a more reasonable parameter could be adopted rather than using the same parameters and Model plant developed for industries in Subcategory I, Louisiana.

ES&WQIAC COMMENTS SUBMITTED BY
MEMBERS RAMON GUZMAN AND DON BLOODGOOD

ANIMAL FEED, BREAKFAST CEREAL AND WHEAT STARCH SEGMENT OF THE GRAIN MILLS

Industrial Categorization

The industry had been divided into four subcategories. The age and size of the plants were not considered, apparently they are not significant. The subcategories as recommended by the Contractor appears to be satisfactory for this industry and are reasonable with respect to waste treatability.

Waste Characterization

Grain milling wastewaters consists primarily of biodegradable organic constituents and suspended solids. There are no toxic ions in this waste. There appears to be a high variability in volume, BOD, TSS in this waste, but the data gathered by the Contractor is not sufficient to develop statistical relationship for these parameters. Volume has another high variance, as some industries recirculate their cooling waters, while others use the once-through cooling system.

Treatment Technologies

In-plant controls consider segregation of cooling waters and the use of surface condensers. Activated sludge or biofiltration can be used to remove the organic constituents of the wastewaters. Lagooning is also an acceptable method for the oxidation of the organic molecules, but apparently this practice is limited in the industry. Plants discussed show high variability in effluent BOD and TSS. It has been suggested that to cope with the changes in terperature in the northern states where some of the plants are located , considerations must be given in the design and operation of the treatment plant. The organic loading, or F:M ratio for these wastes may have to be consider to prevent sludge bulking and carryover of suspended solids.

Variations in Raw Materials

Being natural products, the raw materials are subject to the variations caused by species or hydrid seed, the climatic conditions during the growing season, the nature of the soil in which the crop grew, the fertilizer program that the farmer employed, the handling of the grain, and the way it is dried for storage. These are unpredictable within a crop year. The state of technology is that the industry has never been able to difine or correlate all the variables involved to evaluate the signigicance of each. Because of these reasons, the RWL in this waste is highly variable, and thus good data is needed to consider what enters the wastewater treatment system. For design purposes, as well as to make the statitical analyses to adequately define the RWL and the percent reduction that could be attained by the various waste treatment methods.

Effluent Limitations

The limitations recommended by the Contractor are very restrictive, requiring removals in excess of 95% for BOD and suspended solids in some cases. There is no plant in the country at the present time which is attaining the proposed reduction, thus the Contractors' figures are being based on technology which has not been demonstrated by a practical operation by the industry. This is particularly true for the wheat starch and gluten manufacturing subcategory. Thus, the Contractor is basing his recommendations on a technology transfer rather than actual plant operations, although the wastewaters from this industry segment can be treated by biological methods. Removals of 85-90% could be attained with the actual technology, but in requiring removals in excess of 95% additional treatment is needed, thus increasing the cost of operation to the industry. Although this waste is readily degradable, the high starch and sugar content might cause some operational problems that may make it difficult to obtain removals of BOD greater than 90% as is recommended by the Contractor.

The economic burden to be imposed on the Industry by requiring such high removals of BOD, seems too high for the environmental benefits achieved. This, of course, may not apply to those industries which at the present time arr discharging to municipal sewerage systems, although it is possible that pre-treatment may be required by the EPA or the municipality to reduce the organic load discharged to the municipals sewerage system.

Climatological Considerations

There is no apparent consideration of climatological factors in this segment of the industry. Some of the ready-to-eat cereal plants are located in northern states particularly Mighigan, where it would be practically difficult or impossible to attain a 95, 90 or even 85 percent BOD reduction during the winter and part of the spring. It should also be considered that this waste is very low, according to the Contractors report, in nitrogen and phosphorus and although this could be added, it may result in another operation difficulty.

Comments on Recommended Effluent Limitations by the Contractor and the EPA

Subcategories 1 and 2-Animal Feed & Hot Cereal Manufacturing

The segments of the industry included in these categories are animal feed and hot cereal manufacturing. Both use little process water, however, they need to generate steam and they use water for cooling purposes. The Contractors' recommendation is zero discharge for these subcategories and this appears satisfactory for the process waste providing this is the practice throughout the industry. However, it is necessary to permit the discharge of the boiler blowdown and cooling waters. It is considered that the Contractor' recommendation as to zero discharge refers to the process wastewaters and not to the boiler blowdown and cooling waters. These, of course, contain neglibible organic matter and suspended solids.

Sub-Category 3- Ready-to-Eat Cereals

The data gathered in Table 5 of the Contractor's report indicates the following raw waste loads.

RWL READY-TO-EAT CEREALS BASED ON 11 PLANTS SURVEYED

	Flow (gal/lb.)	BOD (lbs. / 1,000 lbs.)	TSS (lbs. / 1,000 lbs.)
Minimum	0.30	2.2	0.6
Maximum	1.15	18.2	2.7
Average	0.70	6.6	1.4

CONTRACTOR'S RECOMMENDATIONS FOR BPT

	lb./1000 lb.	% Reduction
BOD	0.40	93.9
TSS	0.40	71.4

CONTRACTOR'S RECOMMENDATIONS FOR BAT

	lb./1000 lb.	% Reduction Based on RWL
BOD*	0.2	97.0
TSS*	0.15	89.3

For new sources, the Contractor's recommendation are the same as for BAT.

Sub-Category 4- Wheat Starch Manufacturing

Five plants were visited by the Contractor. The data gathered indicates that the RWL of the five plants, is as shown in Table 7 of the report.

RWL WHEAT STARCH MANUFACTURING

		mg/l
Flow, gal/lb	1.19	
BOD, lb/1000 lb. Avg.	90.7	9139
BOD, lb/1000 lb. min.	80.5	8111
TSS, lb/1000 lb. Avg.	75.2	7577
TSS, lb/1000 lb. Min.	60.1	6056

* (a) Lbs. per 1000 lbs.

(b) If we consider a 90% BOD reduction, based on RWL as reported by the Contractor, effluent limitations would be - BOD - 0.7 lb/1000 lbs.
TSS - 0.2 lb/1000 lbs.

Effluent limitations as recommended by the Contractor are as follows:

	BPT	BAT	BPT (mg/l)	BAT (mg/l)
BOD, lb/100 lb	2.0	0.5	201	50
TSS, lb/100 lb	2.0	0.4	201	40

This corresponds to the following reductions, utilizing the RWL data gathered by the Contractor in the five plants visited.

PER CENT BOD AND TSS REDUCTION RECOMMENDED BY THE CONTRACTOR

	BPT*	BAT*	BPT**	BAT**
BOD	97.8	99.4	97.5	99.4
TSS	97.3	99.5	96.7	99.3

The report indicates that the 0.5 and 0.4 lb/1000 lbs for BAT, best available control technology economically available, will require a reduction of 99.4% for BOD and 99.3% for suspended solids. The reduction proposed for suspended solids and BOD for BAT is almost 100%. This does not appear to be economical in actual practice.

It is considered that the 97.5% for BPT based on the average of the five plants surveyed, can not be achieved economically by the industry, and that the recommendation made by the Contractor is too restrictive. To attain the 97.5% required by the Contractor BPT would require advanced waste treatment.

*Considering average RWL of 5 plants surveyed

**Considering Minimum RWL of 5 plants surveyed

Based on the average and the minimum of the five plants visited and assuming a 90% reduction of BOD and TSS, the effluent limitations would be as follows:

BOD AND TSS AT 90% REDUCTION FOR SUB-CATEGORY 4

	Based on Avg. RWL		Based on Minimum RWL	
	Avg.	mg/l	Min.	mg/l
BOD	9.1	917	8.1	816
TSS	7.5	756	6.0	605
(lb/1000 lb)				

ES&WQIAC Recommendations

Following the analysis of the data gathered by the Contractor in the plants surveyed, ES*WQIAC makes the following recommendations for effluent limitations:

Sub-category	
1	Zero discharge, except for blowdown and cooling waters
2	Zero discharge except for blowdown and cooling waters

BEST PRACTICAL TECHNOLOGY CURRENTLY AVAILABLE

	BOD	mg/l	TSS	mg/l
3	0.7*	120	0.2*	34
4	9.1*	917	7.2*	725

BEST AVAILABLE TECHNOLOGY

	BOD	mg/l	TSS	mg/l
3	0.35*	60	0.1*	17
4	4.5*	453	3.6*	363

*Figures in lb/1000 lbs.

NEW SOURCES

New sources standards recommended are the same as for BATEA.

The figures recommended herewith have been obtained from the data indicated in the Contractor's report. However, the data collected have been very limited, and adequately does not show the variability of the wastewater treatment plant effluent or the raw waste load. Although the Contractor indicates that this waste is highly variable, the data collected does not permit statistical evaluation of the variables involved. It is felt that the data from plants presently in operation as reported by the Contractor does not represent actual plant operation nor its variability. As well it does not take into consideration the climatological fuctors involved in different plants throughout the country.

The Cost Analysis indicated by the Contractor states that by using activated sludge, a relatively small plant with a production of 100,000 lb./day would need to spend $892,000 for the process waste treatment plant, plus $240,700 in operating annual expenses, to obtain a BOD reduction of 95.6 to 97.8% and a total suspended solids removal of 94.7 to 98.7%. The same plant would need to use Alternative D, equalization, activated sludge and deep bed filtration to attain the reduction required by the Contractor.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

February 9, 1975

MEMORANDUM

SUBJECT: Comments and Recommendations on the Draft Development Document for Auto and Other Laundries.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

AUTO AND OTHER LAUNDRIES

General Information:

The report (D.D.D.) was prepared under the direction of A.D. Sido of the Office of Enforcement and General Counsel, National Field Investigations Center, Cincinnati, Ohio.

The data considered for the report were derived from EPA permit applications, EPA sampling and inspections, consultant and industry reports.

There are 125 references to publications on the subject, including those by ES&WQIAC members Eckenfelder and Grieves. "Additional information was obtained by visiting and sampling the wastewater from plants that were referred to as being 'explanatory' as to: strength and volume of wastewater; type of laundry and pretreatment or the recycling of wastewater." Perhaps they meant 'exemplatory' instead of 'explanatory'.

The following laundries were visited;

1. Cintas, Cincinnati, Ohio
2. Mission Linen Supply, Santa Barbara, California
3. Roscoe Company, Chicago, Illinois
4. Medical Arts Linen Supply Company, New York, New York

5. Sterling Laundry, Silver Spring, Maryland
6. Security Amirkahanian, Cincinnati, Ohio
7. Parkway Auto Wash Inc., Cincinnati, Ohio

Table 2 shows the statistical highlights of the laundry industry in 1967. There were 79,301 establishments employing 572,505 persons exclusive of the auto laundries.

Subcategories:

1. Industrial Laundries
2. Linen Laundries
3. Auto Washes
4. Carpet and Upholstery Cleaners
5. Coin-ops
6. Dry Cleaning Plants
7. Flotation Diatomaceous Earth Filter System

Raw Waste Loads:

Table 5
Table 6
Table 7
Table 8
Table 9
Table 10
Table 11
Table 12

Pollutant Parameters:

The pollutant parameters used for defining BPT and BAT are:

BOD_5
Total Suspended Solids
Oil and Grease
Hg
Ni
Cd
Zn
Cr
Cu
Pb

Not all of the parameters are used for every subcategory as can be seen by Table 13.

TABLE 2

Statistical Highlights
Laundry Industry
(1967)

Segment of Industry	Receipts	Percent of Market	Number of Establishments	Number of Employees
Garment Pressing Alteration and and Repair	$ 242,453,000	4.9	7,738	18,796
Self-service Laundries and Dry Cleaning	407,412,000	8.2	29,551	32,207
Industrial Launderers	561,459,000	11.2	918	45,183
Linen Supply	733,874,000	14.7	1,435	67,507
Power Laundries	941,696,000	18.8	6,350	146,155
Cleaning and Dyeing Plants	1,938,024,000	38.7	30,625	246,348
Laundries, except Power and Coin-operated	46,524,000		1,474	4,977
Diaper Service	64,331,000		316	5,996
Rug Cleaning and Repairing Plants	66,342,000		894	5,336
			79301	572,505

TABLE 5

General Characterization of Wastewater from Laundries and Auto Washes

Parameter	Minimum	Maximum ppm	Average
BOD(5)	15	2,482	1,073
TSS	15	4,350	869
TDS	104	6,454	2,267
pH	5.1	13.0	10.4
Oil and Grease	38	2,229	723
Hg	0.0005	0.007	-
Ni	< 0.3*	2.5	0.4*
Fe	3.2	8.3	4.0
Cd	0	0.6	0.02*
Zn	0.40	8.9	0.40
Cr	0.4	3.6	0.5*
Cu	0.1*	9.3	0.1*
Pb	0.6*	35.8	0.6*

* = Less Than

Reference

TABLE 6

Typical Industrial Laundry Waste(92)

Parameter	Minimum	Maximum mg/1	Average
Total Solids	4,856	8,649	6,748
TOC	950	6,300	2,482
Total Volatile Solids	3,250	5,284	3,866
Suspended Solids	649	4,950	2,809
Volatile Suspended Solids	1,458	2,225	1,889
Oil and Grease	403	3,756	1,538
pH - units	11.0	13.0	12.0
Total Alkalinity	1,825	3,190	2,066
BOD	647	1,314	830
Total Dissolved Solids	1,550	6,545	4,697
Chromium	1.0	3.6	2.4
Copper	0.2	9.3	3.7
Lead	3.0	35.8	13.2
Zinc	0.55	8.9	4.1
Cadmium	< .05	0.6	.2
Iron	3.5	126	42
Nickel	1.0	2.5	1.4
Mercury	0.001	0.007	0.003

TABLE 7*

Wastewater Loadings
Industrial Laundry

Parameter	lb/1,000 gallons Minimum	 Maximum	 Average	Unit Output lb/lb
BOD(5)	13	20	17	0.098
TSS	8	36	18	0.025
TDS	13	55	39	0.220
Oil and Grease	2	19	10	0.056
Hg	0.000008	0.00006	0.00002	0.0000001
Ni	0.04	0.09	0.01	0.00006
Fe	0.03	1.05	0.35	0.0020
Cd	0.0004	0.01	0.002	0.00001
Zn	0.004	0.07	0.033	0.00018
Cr	0.01	0.03	0.020	0.0001
Cu	0.002	0.08	0.031	0.00017
Pb	0.02	0.29	0.110	0.00062

*Calculated from Table 6

TABLE 8

Pollutant Concentration in Wastewater From a Typical Linen Supply Laundry (92)

	Minimum	Maximum	Average
pH	10.3	11.2	
Alk., mg/l CaCO(3)	500	925	679
TS, mg/l	1,973	3,663	2,675
TVS, mg/l	1,468	1,630	1,549
SS, mg/l	500	1,474	736
COD, mg/l	2,125	5,113	3,057
BOD, mg/l	97	797	314
Soluble Solids, mg/l	1,725	2,038	1,837
Vol. Sol. Solids, mg/l	964	991	978
Oil and Grease, mg/l	203	1,220	628
Sol. COD, mg/l	1,173	2,590	1,649
Cr	-	-	.06
Cu	-	-	.27
Pb	-	-	.70
Zn	-	-	.47
Cd	-	-	.04
Ni	-	-	2.10

No data available

TABLE 9**

Typical Loadings in Wastewater From Tunnel-Type Auto Washes

	lb/1,000 gallons			Unit Output
Parameter	Maximum	Minimum	Average	lb/car
BOD(5)	0.95	0.17	0.48	0.020
TSS	4.5	0.95	2.3	0.011
TDS	17.6	5.0	10.2	0.46
Detergents	27.4	1.9	12.6	0.56
Oil and Grease	1.6	0.31	0.70	0.032
Ni	0.006*	0.003*	0.003*	0.0001*
Fe	0.03	0.03	0.03	0.001
Cd	0.0003*	0.0002*	0.0002*	0.0001*
Zn	0.003	0.003	0.003	0.0001
Cr	0.008*	0.003*	0.004*	0.0002*
Cu	0.003*	0.001*	0.001*	0.00001*
Pb	0.001*	0.001*	0.001*	0.00001*

* = Less Than
** Calculated From Tables 10 and 11

TABLE 10

Typical Pollutant Concentrations in Wastewater From Self-Service Auto Washes (40)

(10 month period)

	Minimum mg/l	Maximum mg/l	Average mg/l
Total Solids	729	3,334	2,006
Total Volatile Solids	207	871	456
Suspended Solids	95	840	386
Volatile Suspended Solids	25	116	72
BOD(5)	15	166	57
Oil and Grease	38	200	86

TABLE 11

Pollutant Concentrations in Wastewater From A Tunnel-Type Auto Wash

(Based on eight grab samples)

	Minimum	Maximum	Average
Freon extractable oil-grease mg/l	0.1*	0.3	.2
BOD(2), mg/l	4	32.8	18.6
BOD(5), mg/l	28	78.7	52.2
BOD(7), mg/l	39.3	99.0	64.8
Suspended solids mg/l	160	234	189
Volatile suspended solids mg/l	55	88	74
Total solids mg/l	728	1,964	921
Alkalinity -Phenolphthalein mg/l	6	25	11
Alkalinity - Total mg/l	146	199	160
Turbidity JTU	68	179	124
TOC mg/l	25	56	45
COD mg/l	156	274	222
Total P mg/l	27	37	34
TKN mg/l	1.8	6.6	3.1
Surfactants (LAS) mg/l	105	185	147
Ni mg/l	.3*	.7*	.4*
Ca mg/l	10	60	30
Cr mg/l	.4*	1.*	.5*
Ba mg/l	.2*	.4*	.2*
Sn mg/l	1.*	1.	1.*
Mg mg/l	10	20	15
V mg/l	1.*	3.*	1.*
Mo mg/l	.2*	.4*	.2*
Ti mg/l	.2*	.6*	.3*
As mg/l	10.*	30.*	20.*
Pd mg/l	.5*	1.*	.6*
Tl mg/l	.4*	1.*	.5*
Ga mg/l	.1*	.3*	.1*
Al mg/l	.6	1.	.8
Sr mg/l	.1	.3	.2
Sm mg/l	.9*	2.*	1.*
Zn mg/l	.3	.4	.4
Cd mg/l	.02*	.04*	.02*
Mn mg/l	.1	.1	.1
Fe mg/l	3.	4.	4.
Pb mg/l	.5	1.*	.6*

(Continued on next page)

Be mg/1	.01*	.03*	.01*
Sb mg/1	.5*	1.*	.7*
Cu mg/1	.1*	.3*	.1*
pH units	8.7	9.1	8.9
Temp. C	25.0	28.0	26.0
4 uhos/cm(3) Conductivity	710	3,000	1,020

* = Less Than

Analyses by EPA, Office of Enforcement & General Counsel, NFIC-Cincinnati, October 1973.

TABLE 12

Pollutant Concentrations in Wastewaters
From Typical Laundromats(110)

	Minimum mg/1	Maximum mg/1	Average
ABS	3.0	126.0	44.0
Suspended Solids	15.0	784.0	173.0
Dissolved Solids	104.0	2,064.0	812.0
COD	65.0	1,405.0	447.0
Alkalinity	61.0	398.0	182.0
Chlorides	52.0	185.0	57.0
Phosphates	1.0	430.0	148.0
pH	5.1	10.0	-
Nitrates	-	-	1.0*
Free Ammonia	-	-	3.0
Sulfates	-	-	200.0
BOD(5)	119	243	170

* = Less Than

All units in mg/1 except pH which is expressed in units.

TABLE 13

Control Parameter

Subcategory	pH	SS	BOD(5)	Oil and Grease	Heavy Metals
1. Industrial Laundries	X	X	X	X	X
2. Linen, Power and Diaper Laundries	X	X	X	X	X
3. Auto Wash		X	X	X	
4. Carpet Upholstery Cleaning		X	X		
5. Coin-operated and Laundries Not Classified Elsewhere	X	X	X	X	
6. Dry Cleaning Except Rug Cleaning					

Control and Treatment Technology:

1. Nine out of ten plants discharge directly to publicly owned treatment facilities.

2. Recycling is practiced at about 39% of existing car washes.

3. Coin-operated laundries almost invariably discharge into municipal sewers.

4. Dry cleaning establishments use expensive solvents and reuse them as many times as possible. Water discharge is from non-contact condensers.

On page VII-2 it says, "no technology currently exists that can treat the exceedingly high concentrations of pollutants in industrial laundry wastewater in a completely satisfactory manner."

Table 15 shows the average contaminant concentration reductions achieved by industrial laundry treatment by flotation-diatomaceous earth system.

TABLE A

Treated Effluent vs Criteria

	Flotation - DE System Effluent	Proposed Criteria for Water Quality Aquatic Life
Chromium	2.0 mg/l	.05
Copper	.5	.033 in hard water .006 in soft water
Lead	1.4	.03
Zinc	.1	33 mg/l in hard water .87 in soft water
Cadmium	.19	.003 in hard water .0004 in soft water
Iron	.4	.3 soluble iron
Nickel	1.2	.8 to .4 in hard water .03 in soft water
Mercury	0.7	0.2 ug/l

The values in Table A taken from the "Proposed Criteria for Water Quality" October 1973, may not be interpreted correctly but they do serve as a guide in the deliberation on treatment processes for the industrial laundry subcategory.

TABLE 15

Average Contaminant Concentration Reductions Achieved by Industrial Laundry Treatment For Flotation-DE System(92)

	Raw Waste	Pounds/ 1,000 Gallons	Flotation Effluent	Pounds/ 1,000 Gallons	Diatomaceous Earth Effluent	Pounds/ 1,000 Gallons
BOD, mg/1	830	(6.9)	611	(5.1)	335	(2.79)
Suspended Solids, mg/1	2,809	(23.4)	674	(5.6)	87	(0.74)
VSS, % of Sus. Solids	62.7	-	82.2	-	75.8	-
TOC, mg/1	2,482	(20.7)	1,067	(8.9)	362	(0.29)
Total Solids, mg/1	6,748	(56.3)	4,693	(39.1)	4,073	(3.42)
VTS, % of Total Solids	31.5	-	25.7	-	16.6	-
Oil and Grease, mg/1	1,538	(12.8)	568	(4.7)	95	(0.14)
Chromium, mg/1	2.3	(0.02)	1.8	(0.01)	2.0	(0.02)
Copper, mg/1	4.0	(0.03)	0.7	(0.006)	0.5	(0.004)
Lead, mg/1	12.7	(0.11)	2.3	(0.02)	1.4	(0.01)
Zinc mg/1	3.9	(0.03)	0.4	(0.003)	0.1	(0.001)
Cadmium, mg/1	0.24	(0.002)	0.23	(0.002)	0.19	(0.002)
Iron, mg/1	39.5	(0.33)	1.4	(0.12)	0.4	(0.003)
Nickel, mg/1	1.6	(0.01)	1.2	(0.01)	1.2	(0.01)
Mercury, ug/1	3.3	(0.03)	1.0	(0.01)	0.7	(0.006)
TOC/BOD	2.5	-	1.5	-	1.25	-
Alkalinity to pH 8.3 mg/1 as CaCO(3)	326	(2.7)	152	(1.27)	142	(1.18)
Alkalinity to pH 4.5 mg/1 as CaCO(3)	1,725	(14.4)	295	(2.46)	249	(2.07)

- No data available.

Effluent Limitations:

The effluent limitations for BPT, BAT, N.S., Pretreatment existing sources and new sources are shown in Table I together with the expected concentrations.

Comments & Recommendations:

1. Page III-6, line 179, it is questionable whether this report should say: "It is one of the most objectionable of all wastes...".

2. Page III-6, line 186, it is questionable whether "Laundry wastewater can be a severe wastewater treatment problem for a community of any size." is a correct statement.

3. Page III-6 line 198, is the word "explanatory" supposed to be "exemplary"?

4. Page III-7. the last paragraph is most confusing.

5. The seven facilities visited and samples taken is hardly a fair representation of the more than 79,000 establishments. This is particularly true of the industrial laundries that may be handling a great variety of materials in the clothes that they wash.

6. This is one of the first documents that uses the now generally accepted word wastewater (one word). It may not be too late to discontinue the use of the word effluent when meaning untreated waste discharge and to use it only in connection with the discharge after treatment. Page IV-1, line 27.

7. Page IV-1, line 30, the equipment suitable for treating these wastes is a bit large to store on the shelf.

8. Page IV-1, line 34, carpet and upholstery cleaning is hardly an "it".

9. Page IV-4, Table 3*, what is the intended meaning of "Water Level"? Is it possible to obtain an idea of the weight of the cloth being washed?

10. Page IV-5, Table 4*, (same comment as for #9).

11. Page IV-6, line 114, the intended meaning of "detailing" is not clear.

12. Page IV-7, line 133, the wand is not "activated" it is supplied with water by a pump. What is a roll-around cabinet?

13. Page IV-9, line 198, what is meant by "this subcategory"?

TABLE 1

Best Practicable Control Technology

30-Day Averages*

21.46 21.20 496.3 2

Parameter	Subcategory 1 Industrial** lb/lb or kg/kg	mg/l	Subcategory 2 Linen*** lb/lb or kg/kg	mg/l	Subcategory 3 Auto	Subcategory 4 Carpet	Subcategory 5 Coin-Op**** lb/load	kg/load	mg/l	Subcategory 6 Dry Cleaning
BOD(5)	0.0014	30	0.0014	31	NDP	NDP	0.0075	0.0034	30	NDP
Suspended Solids	0.0014	30	0.0014	31	NDP	NDP	0.0075	0.0034	30	NDP
Oil and Grease	0.0005	11	0.0005	11	NDP	NDP	NR	NR		NDP
Hg	.5X10(-8)	.0001	.5X10(-8)	.0001	NDP	NDP	NR	NR		NDP
Ni	.2X10(-4)	.5	.2X10(-4)	.5	NDP	NDP	NR	NR		NDP
Cd	.1X10(-5)	.02	.1X10(-5)	.02	NDP	NDP	NR	NR		NDP
Zn	.2X10(-4)	.5	.2X10(-4)	.5	NDP	NDP	NR	NR		NDP
Cr	.2X10(-4)	.5	.2X10(-4)	.5	NDP	NDP	NR	NR		NDP
Cu	.9X10(-5)	.2	.9X10(-5)	.2	NDP	NDP	NR	NR		NDP
Pb	.2X10(-4)	.5	.2X10(-4)	.5	NDP	NDP	NR	NR		NDP

* Daily maximum should not exceed two times the limits.
**Average load, 800 lb; average volume of water used, 4,470 gal (Reference 92). 5588 gal/1000 lbs
***Average linen load, 550 lb; average volume of water used, 3,025 gal. (Reference 92) 5500 gal/[illegible]
****Average load, 10.5 lb; average volume of water used is 30 gal., page V-7, this report. [illegible]
NR = Not regulated
Concentrations used in loadings calculations are contained in Section IX, Table 1.
NDP=No discharge of pollutants.

BA[illegible]	[illegible]	ALL POLLUTANTS	NO DISCHARGE	NO DISCHARGE	ALL POLLUTANTS	NO DISCHARGE
N.S.	[illegible]	ALL POLLUTANTS	ALL POLLUTANTS	ALL POLLUTANTS	ALL POLLUTANTS	ALL POLLUTANTS
PRETREAT, F[illegible]	[illegible]	[illegible]	SUMP OR HOLDING BASIN SETTLING NO DISCHARGE	FILTER THE [illegible]	[illegible] LINT SCREEN	NO PRETREAT REQUIRED

14. Page V-2, is there a reference for the Table?

15. Page V-3, Figure 1, where does the linen and the industrial laundry enter the system? What is meant by a "linen storage pit"?

16. Page V-10, Figure 2, what is the "soap return to pit" what pit? Where does the back wash from filter (2) discharge?

17. Page V-13, Table 11, it is misleading to show as, less than 10 mg/l minimum and less than 30 mg/l maximum. This sounds as though the values are little better than guesses.

18. Page VI-4, line 70, should "susions" be "suspensions"?

19. Page VII-2, lines 50, 51 and 52, "(2) The removal of solid wastes generated by these recycle systems are beyond the scope of these guidelines," does not adequately cover filter back washings.

20. Page VII-3, lines 62 & 63, why not say right here what the "alternative operating procedure" is?

21. Page VII-3, line 72, "The flotation effluent..." should probably be "The effluent from the flotation process...".

22. Page VII-16, line 277, where do the "bumped" filter coatings go?

23. Page VII-23, last line, should it read "cationic surfactant added"?

24. Page VII-25, line 371, gpg is not in the list of abreviations. What does it stand for?

25. Page VII-29, "Rejection Levels" does not adequately describe the contents of the table. It is presumed that the table shows the percent of the parameters rejected. What is to be done with the concentrate?

26. Page VII-31, Table 29, why is arsenic not included when a limitation of .1 mg/l is the maximum acceptable in raw water supplies and collected data shows that it may be present in industrial laundry waters?

27. Page VIII-1, line 31, what are "scale economies"?

28. Page VIII-2, line 54, figure is missing line 61, "zero" is absolutely nothing, how is this possible?

29. Page VIII-3, line 72, is this 77 pounds wet or dry?

30. Page VIII-6, line 174, what is the "oxidation charcoal system"?

31. Page VIII-6, line 180, does "scales" mean size?

32. Page VIII-10, 1st paragraph, it is not clear to the reader whether it costs no additional for BAT or whether BAT costs as much as BPT.

33. Page VIII-10, 2nd paragraph, the recommendation for BPT limitations for pretreatment requirements for existing and new sources must be given further consideration because this requirement does not seem reasonable.

34. Page IX-3, line 130, what is an "oxidation tank"? Line 142-143 should be continued with a statement on sludge disposal.

35. Page 11, line 33, "all the pollutants" means zero concentration and this is impossible.

36. There is a lack of an adequate raw waste load base on which to make rational decissions regarding effluent limitations. Certainly all industrial laundries do not have wastewaters that contain all of the heavy metals listed for BPT. It would appear that a thorough monitoring program would be extremely expensive.

37. An investigation of the concentration of heavy metals in municipal sewage is now an absolute necessity to determine the degree of dilution that can be expected if industrial laundries discharge treated or untreated wastes to the municipal systems.

38. Great care should be taken in the establishing of effluent limitations for the industrial laundries to make sure that they do not prohibit discharges to municipal sewers that are less than those permitted small electroplating plants.

Summary Statement:

The wastewaters from Industrial Laundries can be very difficult to treat and control. The wastes can contain almost any conceivable pollutant, a mixture of many pollutants or a mixture of relatively ew pollutants.

The nature of the wiping cloth (shop towel) service is that of collecting or concentrating the pollutants from the environment. Consequently the quantity of pollutant on the cloths (towels) is relatively small compared to the quantity of the pollutants in the environment.

Most of the heavy metals are from stable ores in the environment. Greater by far than the man processed metals.

A fundamental question seems to be; are we paying too much attention to an insignificant quantity of heavy metals or should we be urging the distribution of the heavy metals throughout the entire world, and are there other larger sources of heavy metals discharges taking place as the result of natural oxidation and reduction?

cc: Director, Effluent Guidelines Division

ES&WQIAC REPORT ON

DRAFT DEVELOPMENT DOCUMENT FOR EFFLUENT LIMITATIONS GUIDELINES AND NEW SOURCE PERFORMANCE STANDARDS FOR THE OIL AND GAS EXTRACTION POINT SOURCE CATEGORY

Review by Don E. Bloodgood
November 18, 1974

General:

The segments of the industry covered by the Draft Development Document are:

SIC 1311 Crude Petroleum and Natural Gas
SIC 1381 Drilling Oil and Gas Wells
SIC 1382 Oil and Gas Field Exploration Serevices
SIC 1389 Oil and Gas Field Services, not classified elsewhere

Oil is presently produced in 32 states and from the Outer Continental Shelf off of Louisiana, Texas and California. Exploratory drilling is underway on the OCS off of Mississippi, Alabama and Florida.

There are approximately a half million producing oil wells and 120,000 gas and condensate wells in the United States. Of the 30,000 new wells drilled each year about 55 percent produce oil or gas.

Subcategories:

I. Crude Petroleum and Natural Gas Production
    A. Production Brine Waste
        1. No Discharge Technology
        2. Discharge Technology (Gulf Coast and Costal Alaska)
    B. Deck Drainage - Offshore
    C. Sanitary Waste - Offshore
        a. Facilities continuously manned with 10 or more persons.
        b. Facilities with less than 10 people or intermittently manned.

II. Oil and Gas Well Field Exploration and Drilling
    A. Onshore
        1. Drilling Muds
        2. Drill Cuttings
    B. Offshore
        1. Drilling Muds
        2. Drill Cuttings
        3. Sanitary Waste
            a. Facilities continuously manned with 10 or more persons.
            b. Facilities with less than 10 people or intermittently manned.

III. Oil and Gas Well Completions and Workover
  A. Onshore
    1. Physical/Chemical Treatment of Wells
    2. Solids Removal
  B. Offshore
    1. Physical/Chemical Treatment of Wells
    2. Solids Removal

Raw Waste Loads:

Approximately 500,000 producing oil wells onshore generate brine water in excess of 10 million barrels-per-day. Approximately 17,000 wells have been drilled offshore in the U.S. waters, and approximately 11,000 are producing oil or gas.

Offshore Louisiana, the Outer Continental Shelf alone produces approximately 420,000 barrels of brine water per day; by 1983 Louisiana costal production will generate an estimated 2.54 million barrels of brine water per day.

Other than oils, the primary constituents considered are heavy metals and other toxicants contained in drilling meeds or formation fluids.

Sand has been reported to be produced at approximately one barrel sand per 2,000 barrels of oil.

The quality of brine water produced varies greatly. The range given is 250 to 200,000 bbls. per day. The D.D.D. does not say whether these figures are per day per well or per bbl.

In general, onshore production fluids are not given the broad scrutiny that offshore production fluids receive for possible toxicants and other pollutants. The primary reason is that the total dissolved solids levels in the produced brines are too high to be discharged to surface fresh water streams. When discharge is prohibited, then the presence of pollutants other than total dissolved solids is moot.

In some arid areas of the U.S., produced brine waters that are reasonably low in total dissolced solids are being used for livestock watering and irrigation.

The constituents found in the brine waters are many and in varrious concentrations so that it is impossible to define an average raw waste load.

The volume of cuttings and meed resulting drilling operations varies depending on the size and depth of the hole.

The sanitary wastes from offshore operations vary greatly, figures presented show percapita water use from 16 to 72 gal./capita per day. The BOD is from 460 to 875 mg/l and the suspended solids from 195 to 1,025 mg/l.

Pollutant Parameters:

The D.D.D. shows that the selected pollutant parameters are oil and grease from production water, deck drainage, meeds, cuttings, and sand removal, and floating solids and residual chlorine from sanitary sources.

Treatment Technologies:

1. In-plant Control/Treatment Techniques
2. End-of-Pipe Treatment: Discharge to Sea or Costal Waters
    a. Dissolved Gas Flotation
    b. Parallel Plate Coalescers
    c. Filter Systems (Loose or Fibrous Media Coalescers)
    d. Gravity Separation
    e. Chemical Treatment
3. End-of-Pipe Treatment (With No Discharge of Brine to Sea or Costal Waters)
    a. Subsurface Disposal
    b. Disposal zone
4. End-of-Pipe Technology (Other Treatment systems)
    a. Treatment System By Pass
    b. Deck Drainage
    c. Sand Removal
    d. Drilling Operations (Offshore)
    e. Drilling Operations (Onshore)
    f. Treatment of Field Service Wastes
    g. Sanitary Wastes (Offshore)

Effluent Limitations:

The limitation for BPT, BAT and New Sources (N.S.) are shown in Table I.

Costs, Energy, and Nonwater-Quality Aspects:

The expected annual costs for existing facilities in the oil and gas extraction industry to comply with BPT limitations by 1977 has been estimated to be $192,000,000. The estimated cost for BAT has not as yet been made and is not therefore included with the D.D.D. now available.

Comments and Recommendations:

1. Draft Development Document with penciled editorial comments is submitted.

2. The words used in the Sub and Sub-Subcategories are not adequately discriptive.

3. Page V-4 of the D.D.D. give the complete story of the brine production in bbls. per day per______?

4. Why are the BPT and BAT Limitations for drilling meeds, drill cuttings, physical/chemical well treatment wastes and solids removals for offshore operations designated as NONE instead of no discharge?

5. A definition of floating solids should be given.

6. There must be a better term than SOLIDS REMOVAL to describe what is being done or being considered in this subcategory.

7. What is the rational in establishing the number 10 as the dividing line between the two Subcategories under Sanitary?

8. What is the significance of the odd number 7 of the 57 mg/l for the monthly average for oil and grease?

9. It seems strange to have two limitations on the discharge of production brine wastes. It is difficult to rationalize a more strict regulation for California than for the Gulf of Mexico or a less strict limitation for the Gulf of Mexico than for California. It seems that the situation is similar to the situations where Water Quality Criteria prevail and where Effluent Limitations are not written to meet the WQC.

10. Data on page V11-10 of the D.D.D. certainly shows a wide variation in oil and grease concentrations determined by the several methods.

11. What method of analysis for oil and grease is to be used to evaluate discharges?

TABLE I

DISCHARGE LIMITATIONS

	BPT					BAT & N.S.				
	OIL & GREASE mg/l					OIL & GREASE mg/l				
TEGORY	DAILY MAX.	MONTH MAX.	CHLORINE RESIDUAL mg/l	FLOATING SOLIDS	NO DISCHARGE	DAILY MAX.	MONTH MAX.	CHLORINE RESIDUAL mg/l	FLOATING SOLIDS	NO DISCHARGE
tion Brine Waste										
ischarge										
chnology	-	-	-	-	X	-	-	-	-	X
harge Technology	85	57	-	-	-	-	-	-	-	-
RE										
drainage	85	57	-	-	-	-	-	-	-	X
lling Muds	None	None	-	-	-	None	None	-	-	-
ll Cuttings	None	None	-	-	-	None	None	-	-	-
itary										
10	-	-	1+40%	-	-	-	-	1+40%	-	-
91M	-	-	-	None	-	-	-	-	None	-
sical/Chemical										
atment of Wells	None	None	-	-	-	None	None	-	-	-
ids Removal	None	None	-	-	-	None	None	-	-	-
RE										
lling Muds	-	-	-	-	X	-	-	-	-	X
ll Cuttings	-	-	-	-	X	-	-	-	-	X
sical/Chemical										
atment of Wells	-	-	-	-	X	-	-	-	-	X
ids Removal	-	-	-	-	X	-	-	-	-	X

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE
February 20, 1975

MEMORANDUM

SUBJECT: Comments and Recommendations on the Draft Development Document for Minerals Mining and Processing Volume I.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

MINERALS MINING AND PROCESSING VOLUME I

General Information:

The products covered in this report with their SIC designations are:

1. Dimension stone, SIC 1411
2. Crushed stone, SIC 1422, 1423, 1429 and 1499
3. Construction sand and gravel, SIC 1442
4. Industrial sand, SIC 1446
5. Gypsum, SIC 1492
6. Asphaltic minerals, SIC 1499
7. Asbestos and wollastonite, SIC 1499
8. Lightweight aggregates, SIC 1499
9. Mica and sericite, SIC 1499

The Draft Development Document (DDD) was prepared by the General Technologies Division of Versar, Inc., Springfield, Virginia. Mr. Robert C. Smithe, Jr. directed the day-to-day work on the project. Mr. Michael W. Kosakowski was the Project Officer of the Effluent Guidelines Division of the EPA.

There are more than 82,000 persons employed in the industries covered by the DDD.

Subcategories:

There are nine commodity divisions and 28 subcategories.

1. Dimension stone
    a. Dimension stone

2. Crushed stone
    a. Dry
    b. Wet
    c. Flotation
    d. Shell dredging

3. Construction sand and gravel
    a. Dry
    b. Wet
    c. Dredging on land processing
    d. Dredging on board processing

4. Industrial sand
    a. Dry
    b. Wet
    c. Flotation (acid and alkaline)
    d. Flotation (HF)

5. Gypsum
    a. Dry
    b. Dry, Wet scrubbers
    c. Heavy media separation

6. Asphaltic Minerals
    a. Bituminous limestone
    b. Oil impregnated diatomite
    c. Gilsonite

7. Asbestos and Wollastonite
    a. Asbestos dry
    b. Asbestos wet
    c. Wollastonite

8. Light Weight Aggregates
    a. Perlite
    b. Pumice
    c. Vermiculite

9. Mica and sericite
    a. Dry
    b. Wet
    c. Wet benefication either no clay or general purpose clay-by-product
    d. Wet beneficiation ceramic grade clay by-product

Raw Waste Loads:

The raw waste loads are practically impossible to evaluate or measure because of the great diversity in the operation of mining and processing.

Pollutant Parameters:

The pollutant parameters that have been used in the limitations are: total suspended solids, fluoride and pH.

Treatment Technologies:

The treatment technologies suggested for attaining the degrees of treatment designated are shown in Table I.

Effluent Limitations:

The limitations recommended in the DDD have been summarized in Table II and Table III.

Comments and Recommendations:

1. In reviewing the Draft Development Document one obtains the impression that the segment has been divided into many categories that have similar wastes, treatment methods, and effluents evaluated by identical parameters. It would therefore seem advisable to group the nine product categories (subcategories) into a smaller number of divisions based on treatment methods, discharge or no discharge and effluent parameters.

2. In general the DDD is well written in straight forward language in a clear understandable manner.

3. Page III-5, 1st paragraph (a) needs to be restated in clarified words.

4. Page III-5, 3rd paragraph, 2nd line, typographical error.

5. It will be very helpful in the future if a table is prepared that shows the number (or estimated number) of operating units in each of the product categories (subcategories). This could be added to Table III-1, page III-34.

6. Page III-13, paragraph 3.3, 5th line, probably should be "grain size".

7. Page IV-2, 2nd paragraph under 3.1, needs to be clarified.

8. HMS, should be in the glossary, Page IV-3, Table IV-1, 5.3.

9. Page V-2, 3rd paragraph, last 2 lines, "For example, water treatment generation is an auxiliary process," has no meaning as it is presently written.

10. Page V-4, paragraph 3.1, last four lines. If it says what the reviewer thinks it says it is anything but a compliment to the Contractor.

11. Page V-10, last paragraph, 1st line, "below" and seldom is the information found there, use "as follows". Also, "effluent" is nearly always considered the treated fluid and not the "discharge" from a production plant.

12. Page V-13, 1st written paragraph, 2nd line, "raked tank" should be in the glossary.

13. There should be only one glossary.

14. Page V-15, tabulation 3rd and 7th lines, it is presumed that "JTU" means "Jackson Turbidity Units", whatever it means it should be in the glossary.

15. Page V-16, 2nd full paragraph next to last line, 0.2 percent of 3, seems to be an attempt to fool some one.

16. Page V-17, last line, what is a "large percentage", over 10, over 25, over 50, over 75, or over 99.9?

17. Page V-20, Section 3.2.2.1, 1st paragraph, "excavation and transportation" does not "use", excavators and transporters do "use". Note the "below" in the last line of Section 3.2.2.2 with nothing "below" it. Second paragraph of 3.2.2.1, 5th line, "this step" should probably be deleated.

19. Page V-22, Section 3.2.2.3, 1st line, should probably read "Water is also used...".

20. Page V-23, 1st paragraph, 8th line, "these impurities" should probably be replaced with "the impurities".

21. Page V-24, 1st paragraph, last line, "the settling pond" should probably be "a settling pond"; 2nd paragraph, 8th line, in these documents, "decreased" should probably be used when "reduced" is sometimes used; 2nd paragraph, 4th line, "after" should be replaced with "in".

22. Page V-26, tabulation, "Turbidity-16 FTU", FTU should be in the glossary and the reviewer does not know what it means.

23. Page V-26, 1st paragraph, after 2nd tabulation, should probably be, "in any way after".

24. Page V-27, tabulation, why include plant 1021 if nothing is known?

25. Page V-29, 1st paragraph, how were numbers estimated when a range is given?

26. Page V-29, Section 3.2.3.2, 1st paragraph, are there only 3 facilities? How many more are there?

27. Page V-29, last 2 lines, what is meant by "The five percent fresh water added is used in the step."?

28. Page V-31, Section 3.2.4.1, 1st paragraph, 1st line, does the writer mean "mining" for retrieval? Semi-fossil should be in the glossary. There are several "FTUs" in the tabulation.

29. Page V-32, last paragraph, take a look at, "shell matrix", "rotary and flat screen", "pumped up", "water and sediment is", "on barges".

30. Page V-34, 1st paragraph, 4th line, what is the difference between "muds and silts"?

31. Page V-34, Section 3.2.4.3, 1st line, "shells" for "shell". Note under, "Discharge: same as intake" is there no water in the product? Sect. 3.2.4.5, 3rd line, "shells" for "shell" and 5 to 20 percent of what? Note the use of "effluent" and what is meant by "solids"?

32. Page V-36, Sect. 3.3.1.1, 3rd line, what is the difference between "haul truck" and "truck"? Also the last line page V-38.

33. Page V-39, next to last sentence is not clear as to intended meaning.

34. Page V-41, tabulation, the great spread in lb/ton values (100 to 960) is noted.

35. Page V-43, tabulation, the great spread in gal/ton values (180 to 2250) is noted.

36. Page V-46, tabulation, the concentration of discharged process waters are; 56, 156, 23, 48, 43 and 5 mg/l, in several cases quite respectible effluents.

37. Page V-49, Sect. 3.3.3.3, 1st line, should it read "...similar to those for..."?

38. Page V-50, tabulation, this case in particular, there is a need for an adequate heading for the tabulations throughout the DDD.

40. There is a great possibility of unfair treatment of the onshore processing of dredging operations when the onboard processing limitations are so liberal.

41. Page V-55, Sect. 3.3.4.4, 8th line, is it realized that the addition of a contaminant is being approved?

42. Page V-55, Sect. 3.3.4.5, 3rd line, "effluent flow" is questioned.

43. Page V-56, 1st paragraph, 3rd line, "wells" perhaps should be in the glossary.

44. Page V-56, Sect. 3.4, 6th line, "engine sand" should be in the glossary.

45. Page V-62, last line, another "below" use as follows. (See Page V-64, last line too).

46. Page V-69, (1), what is meant by "60% sample"?

47. Page V-71, last paragraph, "effluent" and "below".

48. Page V-76, under tabulation, "HMS" should be in the glossary.

49. Page V-79, in other Figures exiting arrows should or do show material or substance leaving the system. (Also on other figures.)

50. Page V-82, tabulation, BOD value difference can only be significant if many samples were collected and analized. Also note use of "process effluent" in the partial but not quite satisfactory heading.

51. Page V-83, Sect. 3.7.1.1, 3rd line, "sheared ore" should be in the glossary.

52. Page V-84, Figure V-3.7.1, exiting arrows are needed.

53. Page V-87, Figure V-3.7.2, materials exiting, system, what are they?

54. Page V-90, Figure V-3.7.3, crush and screen, may need an exiting arrow and what meterial goes to the "Wastepile"?

55. Page V-91, Sect. 3.7.3.5, 2nd paragraph, 2nd line, NPDES needs to be in the glossary.

56. Page V-92, Figure V-3.8.1, what is exhausted through the vent?

57. Page V-98, Figure V-3.8.3, is there any discarded material from "Grind Wash and Screen"? What material is vented? What is done on the final screen is there no rejected material?

58. Page V-99, Sect. 3.8.3.3, 1st paragraph, this paragraph leaves much to the imagination and some amusement. What is sanitary water?

59. Page V-100, 1st paragraph after tabulation, 3rd line, "possibly evaporation of boiler blowdown" did the writer mean "water converted to steam

60. Page V-100, Sect. 3.8.3.4, 1st paragraph, who ever heard of reclaiming overburden and sidewall waste? Did the writer mean processing these two materials for product recovery?

61. Page V-101, tabulation, the constituents seem to be more than the total solids. Why is this?

62. Page V-103, Figure V-3.9.1, is there no vent from the Bag House?

63. Page V-105, Figure V-3.9.2, is there no vented steam from the Dryer?

64. Page V-107, Sec. 3.9.3.1, 2nd paragraph, 6th line, "spirals" should be in the glossary. The last work on the page is "below".

65. Page V-112, 2nd paragraph, 7th line, probably should read "...have not been...".

66. Page VI-10, Sect. 3.9 perhaps the paragraph should be continued with,"...and no indication that it should be removed to protect the environment".

67. The fact that no treatment is available is no excuse for not considering a constituent as a parameter. (See Page VI-11, Sect. 3.13 as an example.)

68. Page VII-13, Sect. 5.0, 2nd paragraph, last line, last word should be "lining" instead of "timing".

69. Page VII-15, can not be read because of very poor reproduction.

70. Page VIII-3, some of the costs are very high, and if they were based on the production costs they would be found to be exhorbitant.

71. Page VIII-6, Sect. 2.8, lines 5 through 8 are not clearly written.

72. Page VIII-8, (5) at top of page, are all solid waste disposal costs included when the product is only half of the raw material?

73. Page VIII-13, Level D. at the top of the page, it is difficult to believe that the annual chemical costs can be as low as $1000.

74. Page VIII-21, 3rd paragraph, 4th line, a cost of $.10 per ton is quite an increase in price.

75. Page VIII-24, Sect. 3.4.1.1, some verification of the 5 mg/l is needed when it takes about that much to flocculate the best of raw water supplies.

76. Page VIII-43, Table VIII-2, cost/metric ton mica, are these figures dollars?

77. Page IX-9, 4th paragraph, does "...and associated recycle equipment", include ponds?

78. Page IX-11, 5th paragraph, do you assume that the ponds are already in existance and therefore no charge is shown for them?

79. Page IX-13, 4th paragraph, is "...shell dredging process..." the same as "dredging for shells"?

80. Page IX-16, 4th paragraph, next to last line, what is the basis for the 4ft. limitation? What if the on-land processor wishes to discharge below the surface at the point of the dredging?

81. Page IX-17, 2nd paragraph, statements made are not clear. Particularly why would longer discharge tubes for the dredges be necessary?

82. Page IX-17, with on-land processing what is done with the water pumped by the dredges, and that transported in the barges?

83. Page IX-18, 4th paragraph, it would seem that there would be a considerable of an impact due to the solid wastes from this particular operation. (Dredging with Land Processing.)

84. Page IX-45, 3rd paragraph, 3rd line, is the $245,000 the cost for one plant?

85. Page X-8, Engineering Aspects, what would a permit writer do about a plant in Iowa?

86. Page X-8, Total Cost of Application, does this say $200,000 for one plant? If it does, this is a high expenditure.

87. Page X-12, Total Cost of Application, $15,000 for how many plants?

88. Page X-14, Total Cost of Application, one of 2 is not 60 percent.

89. The limitations for BPT and BAT for Mica and Sericite, Wet Benefication Ceramic Grade Clay By-Product seems to be more than liberal. Are the solids that hard to remove?

90. How necessary is it to write a guideline if there is no water used in the process?

cc: Director, Efflent Guidelines Division

MINERAL MINING I

WASTWATER CONTROL
TABLE I

P.W. PROCESS WATER

CATEGORY (SUBCATEGORY) (See Table II for Titles)	
1.	
(a)	PONDING & RECYCLE OF P.W.
2.	
(a)	NO DISCHARGE
(b)	RECYCLE OF P.W.
(c)	RECYCLE OF P.W. TO WASHING
(d)	DISCHARGE BELOW SURFACE
3.	
(a)	NO DISCHARGE
(b)	PONDING AND/OR RECYCLE
(c)	PONDING AND/OR RECYCLE
(d)	DISCHARGE 4 FT. BELOW SURFACE
4.	
(a)	NO DISCHARGE OF P.W. - RECYCLE OF A.P.C. SCRUBBER W.
(b)	SETTLING OF TSS AND RECYCLE OF P.W.
(c)	SETTLING IN PONDS WITH FLOCCULANTS - pH ADJUSTMENT.
(d)*	THICKENING, PONDING - pH ADJUSTMENT - PARTIAL RECYCLE - DISC
5.	
(a)	NO DISCHARGE
(b)*	DISCHARGE LIMITATIONS - SETTLING IN PONDS OR MECHANICAL.
(c)	RECOVERY OF HEAVY METAL - SETTLING OF TSS - TOTAL RECYCLE
6.	
(a)	NO DISCHARGE - NO WATER USED
(b)	RECYCLE OF SCRUBBER WATER
(c)	PONDING - SETTLING - PARTIAL RECYCLE
7.	
(a)	NO WATER USED IN PROCESS
(b)	TOTAL IMPOUNDMENT OF ALL PROCESS WATERS
(c)	NO WATER USED IN PROCESS
8.	
(a)	NO WATER USED IN PROCESS
(b)	NO WATER USED IN PROCESS
(c)	PONDING TO REMOVE TSS - FLOCCULATION - RECYCLE
9.	
(a)	NO WATER USED IN PROCESS
(b)	SETTLING OF TSS AND RECYCLE
(c)	SETTLING IN PONDS - RECYCLE
(d)*	SETTLING OF TSS IN PONDS - LIME TREATMENT FOR PH CONTROL [illegible]

Subcategory (Category (CATEGORY) (SUBCATEGORY)	BPT	BAT	N.S.	P.T.F.	P.T.N.S.
	DAY AVE	DAY AVE	DAY AVE	DAY AVE	DAY AVE
1. DIMENSION STONE	—	—	—	—	—
(a) DIMENSION STONE	N.D.	N.D.	N.D.		
2. CRUSHED STONE	—	—	—	—	—
(a) DRY	N.D.	N.D.	N.D.		
(b) WET	N.D.	N.D.	N.D.		
(c) FLOTATION	N.D.	N.D.	N.D.		
(d) SHELL DREDGING	DISCHARGE 4' BELOW SURFACE				
3. CONSTRUCTION SAND & GRAVEL	—	—	—	—	—
(a) DRY	N.D.	N.D.	N.D.		
(b) WET	N.D.	N.D.	N.D.		
(c) DREDGING ON LAND PROCESSING	N.D. FROM LAND PROC. FOR DREDGE 4 FT BELOW SURFACE				
(d) DREDGING ON BOARD PROCESSING	DISCHARGE 4' BELOW SURFACE				
4. INDUSTRIAL SAND	—	—	—	—	—
(a) DRY	N.D	N.D	N.D.		
(b) WET	N.D.	N.D.	N.D.		
(c) FLOTATION (ACID AND ALKALINE)	N.D.	N.D	N.D.		
(d) FLOTATION (HF)	*	*	*		
5. GYPSUM	—	—	—	—	—
(a) DRY	N.D.	N.D.	N.D		
(b) DRY, WET SCRUBBERS)	*	*	*		
(c) HEAVY MEDIA SEPARATION	N.D.	N.D.	N.D		
6. ASPHALTIC MINERALS		—	—	—	—
(a) BITUMINOUS LIMESTONE	N.D.	N.D.	N.D		
(b) OIL IMPREGNATED DIATOMITE	N.D.	N.D.	N.D		
(c) GILSONITE	N.D.	N.D.	N.D.		
7. ASBESTOS & WOLLASTONITE	—	—	—	—	—
(a) ASBESTOS DRY	N.D.	N.D.	N.D.		
(b) ASBESTOS WET	N.D.	N.D.	N.D.		
(c) WOLLASTONITE	N.D.	N.D.	N.D.		
8. LIGHT WEIGHT AGGREGATES					—
(a) PERLITE	N.D.	N.D.	N.D.		
(b) PUMICE	N.D.	N.D.	N.D.		
(c) VERMICULITE	N.D.	N.D.	N.D.		
9. MICA AND SERICITE	—	—	—	—	—
(a) DRY	N.D.	N.D.	N.D.		
(b) WET ([illegible] NG)	N.D.	N.D.	N.D.		
(c) WET BENEFICATION EITHER NO CLAY OR GENERAL PURPOSE CLAY BY-PRODUCT	N.D.	N.D.	N.D.		
(d) WET BENEFICATION CERAMIC GRADE CLAY BY-PRODUCT	*	*			
10. MIN WATER DISCHARGE	—	*	*		

TABLE III

MINERAL MINING I LIMITATIONS

	BPT kg/metric ton 30 Day avg	BPT kg/metric ton max day	BPT mg/l 30 day avg	BPT mg/l max day	BAT kg/metric ton 30 day avg	BAT kg/metric ton max day	BAT mg/l 30 day avg	BAT mg/l max day	N.S.
4.(d) FLOW 4613 l/kkg									
TSS	.044	0.22	9.5	48	NO DISCHARGE				
FLUORIDE	.005	0.01	1.1	2.2					N.D.
5 (b) FLOW 3653 l/kkg									
TSS	0.13	0.65	35	178	REPLACE WET SCRUBBERS OR TOTAL IMPOUNDMENT				N.D.
9 (d) FLOW 10,000; 2200 AVG 6100									
TS	1.5	7.5	245	1230	1.25	6.0	205	984	SAME as BAT
10. MINE PUMPOUT	BPT Mo. Avg	Daily Max							
PH	6-9	6-9							
TSS			20	100			20	100	SAME AS BAT

COMMENTS & RECOMMENDATIONS
ON PROPOSED GUIDELINES

COMMENTS & RECOMMENDATIONS
ON PROPOSED GUIDELINES

The following commends and recommendations by [illegible]QIAC pertain to proposed guidelines for the dairy products, insulation fiberglass, glass, timber products, beet sugar, iron and steel, and soap and detergents industries.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

March, 1974

MEMORANDUM

SUBJECT: Proposed Guidelines - Dairy Producting Processing Industry Comments and Recommendations

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member Don E. Bloodgood

TO: For the Record

Comments and Recommendations

Federal Register

40 CFR - Part 405 12/20/73 Part III

1. Categorization is satisfactory
2. The parameters, BOD_5, TSS, and pH are adequate.
3. The difference between the BPT, BOD_5 for maximum day and maximum average is too great in some categories.
4. Removals of BOD_5 greater than 99% are not realistic.

1. Recommend that the BOD_5 factors for fats, proteins and carbohydrates be substituted by designated studies for this specific purpose.
2. Decrease the difference between the maximum day and the maximum average for BPT, BOD_5 for all categories so that the maximum day is not more than 3 times the maximum average.
3. Recommend that waste flow rates for each category be included in the guidelines.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

March, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations - Proposed Guidelines - Insulation Fiberglass

FROM: Effluent Standards and Water Quality Information Advisory Committee

TO: For the Record

Comments and Recommendations

40 CFR Part 426
Aug. 22, 1973
Promulgated Jan. 22, 1974

1. Some parts of the industry have received complaints about the product when "no discharge" of wastes is practiced.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

March, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations - Proposed Guidelines - Glass Industry

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member Don E. Bloodgood

TO: For the Record

Comments and Recommendations

40 CFR Part 426
October 17, 1973
Promulgated Feb. 14, 1974

1. It is going to be very difficult to monitor the treated effluents for oil content.

1. It is recommended that steps be taken to develop visual methods of measuring oil concentrations.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

March, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations - Proposed Guidelines Timber Products

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member Don E. Bloodgood

TO: For the Record

Comments and Recommendations

Federal Register

40 CFR Part 429 1/3/74 Part III

1. Categorization is satisfactory.
2. In BT, Veneer Subcategory, the "other processes" are not named.
3. There are no flows given for the several categories.
4. The BOD_5 regulations for hardboard (Wet) are quite different than those for semi-chemical neutral sulfite.
5. Wastewaters disposed of by evaporation, containment and land disposal may interfere with downstream water rights.

1. Recommend that the "other processes" in the Veneer Subcategory, requiring "No Discharge" be named.
2. Include flow rates in the guidelines.
3. Recommend comparing the hardboard (wet) regulations with those for NSSC waste.
4. Recommend an investigation of the effect of "No Discharge" regulations and downstream water rights.

	BPT		BAT	
	NSSC	Hardboard	NSSC	Hardboard
TSS				
Max. Day	17.0	33.0	9.0	6.6
Max. Avg	10.0	11.0	4.0	2.2
Color			Reg.	No Reg.

It is suggested that the differences be noted and adjustments be made after direct comparisons are made.

Mr. Williams speculates that there are marked differences in the raw waste loads of the two processes.

5. An industry raised questions regarding zero discharge for a plywood mill and a less strict requirement for the discharge from a log pond of the same mill was not really answered. It was speculated that there would be two permits for the mill described.

6. An attempt is being made to develop additional information on the economics of hardwood plywood production and waste treatment where log storage waste water treatment is included.

7. It was stated that evaporation ponds are realistic in the Southern Pine Region but it may be necessary to supplement the natural evaporation with spraying or towers. There may be an "out" included in the promulgated guideline.

8. The interference with downstream water rights when evaporation or containment is practiced has not been considered in writing guidelines.

9. The requirements for boiler-blowdown and runoff from timber storage areas, are being worked on but they are not as yet available.

10. In discussing soil irrigation and land depositing as zero discharge reference was made to the definitions in 401 of the Federal Register, Feb. 4, 1974, Part II, where a definition of navigable waters is presented.

11. It was stated that total evaporation may be considered practical in one industry and not in another depending on the quantity of waste water.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

March, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations - Proposed Guidelines - Beet Sugar

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member Don E. Bloodgood

TO: For the Record

Comments and Recommendations

40 CFR Part 409
Aug. 22, 1973 - Part II
Promulgated Jan. 31, 1974

1. It is most difficult to determine the raw waste load from the Development Document.

2. The flumewater plus the barometric cooling water will give a raw waste load of 3.98 pounds per ton and the proposed guideline permits a discharge of 4.4 pounds per ton.

3. Recommend that the Development Document show the raw waste load.

4. A more complete explanation of loads and treatment are needed in the Development Document.

Review of

IRON & STEEL INDUSTRY

Proposed Guidelines

$\frac{\text{Liters}}{\text{1000 kg.}}$ X .1199 = $\frac{\text{gallons}}{\text{1000 lbs.}}$

Categories

1. A. By-Product Coke
2. B. Beehive Coke
3. C. Sintering
4. D. Blast Furnace (Iron)
5. E. Blast Farnace (Ferrous Manganese)
6. F. Basic Oxygen Furnace (Semi-Wet Air Pollution Control)
7. G. Basic Oxygen (West Air Pollution Control)
8. H. Open Hearth Furnaces
9. I. Electric Arc Furnaces (Semi Wet APC)
10. J. Electric Arc (Wet APC)
11. K. Vacuum Degassing
12. L. Continuous Casting

		BPT		Eff.	Raw	
		max.	avg.	mg/1	mg/1	%
A.	Cyanide T	.0438	.0219	37.[illegible]	110	66
	Phenol	.0029	.0015	2.58	350	99
	Ammonia	.1825	.0912	157	1380	8[illegible]
	BOD_5	.2190	.1095	188	1280	85
	Oil & Grease	.0219	.0109	18.8	240	97
	TSS	.0730	.0365	62.9	36	0
	pH	6 to 9				
	Sulfide				629	

Flow 69.57 gal/1000 lb

1725.54 X #s/1000 lb = mg/1

	BAT			% Rem.
Cyanide	.0002	.0001	.17	99.8
Phenol	.0004	.0002	.34	99.9
Ammonia	.0083	.0042	7	99.5
BOD_5	.0166	.0083	14	98.9
Oil & Grease	.0083	.0042	7.2	97
TSS	.0083	.0042	7.2	80
pH	6 to 9			
Sulfide	.000[illegible]	.0001	.11	99.9

B. BPT

No discharge

BAT

No discharge

C. Sintering

	BPT		Eff.	Raw	%
	max.	ave.	mg/1	mg/1	Rem.
TSS	.0208	.0104	11	11920	99.9
Oil &	.0042	.0021	2.2	481	99.5
pH	6.0 to 9.0				

Flow 111.14 gal/1000 kkg

Sulfide				126	
Fluoride				.64	

1078.865 X #s/1000#s = mg/1

BAT

TSS	.0104	.0052	5.6		99.95
Oil & Grease	.0042	.0021	2.3		99.5
Sulfide	.00012	.00006	.065		99.9
Fluoride	.0083	.0042	4.5		increase
pH	6.0 to 9.0				

D. Blast Furnace Iron

	BPT		Eff.	Raw	%
		avg.	mg/1	mg/1	Rem.
TSS	.0521	.0260	1.8	962	99.8
Cyanide T.	.0156	.0078	.5	1.15	56.5
Phenol	.0042	.0021	.14	.398	64.8
Ammonia	.1303	.0651	4.5	6.84	34.2
pH	6.0 to 9.0				
Sul				14.5	
Fluoride				.886	

Flow 1725 gal/1000#s
69.5096 X #s/1000#s = mg/1

BAT

TSS	.0104	.0052	.36		99.96
Cyanide A	.00026	.00013	.009		99.2
Ammonia	.0104	.0052	.36		94.7
Sulfide	.00031	.00016	.17		98.8
Fluoride	.0208	.0104	.72		18.7
pH	6.0 to 9.0				

E. Blast Furnace (Ferromanganese)

	BPT max.	avg.	Eff. mg/1	Raw mg/1	% Rem.
TSS	.2086	.1043	3.2	5000	99.94
Cyanide T	.0625	.0312	1.0	23.6	95.8
Phenol	.0083	.0042	.13	.13	0
Ammonia	.4172	.2086	6.48	114	94.3
pH	6.0 to 9.0				
Flow	3861 gal/1000#s				
Sulfide				-2.66	
Manganese				833	

31.0559 X #s/1000#s = mg/1

BAT

TSS	.0208	.0104	.32		99.993
Cyanide A	.00052	.00026	.008		99.97
Phenol	.00104	.00052	.016		87.7
Ammonia	.0208	.0104	.32		99.72
Sulfide	.00062	.00031	.0096		
Manganese	.0104	.0052	.16		99.98

F. Basic Oxygen Furnace (Semi Wet A-P-C)

BPT No Discharge

BAT No Discharge

G. Basic Oxygen Furnace (Wet A-P-C)

	BPT max.	avg.	Eff. mg/1	Raw mg/1	% Removal
TSS	.0104	.00052	.23	1991	99.99
pH	6.0 to 9.0				
Flow	276 gal/1000#s				
Fluoride				5.34	

434.46 X #s/1000#s = mg/1

BAT

TSS	.0104	.00052	.23		99.99
Fluoride	.0083	.0042	1.82		65.9
pH	6.0 to 9.0				

H. Open Hearth Furnaces

BPT

	max.	avg.	Eff mg/l	Raw mg/l	% Rem.
TSS	.0208	.0104	4.3	2134	99.8
pH	6.0 to 9.0				
Flow	289 gal/1000#s				
Fluoride					
Nitrate				18.8	
Zinc				26.7	
	414.938 X #s/1000#s = mg/l			414	

BAT

TSS	.0104	.0052	2.16		
Fluoride	.0083	.0042	1.74		99.90
Nitrate	.0187	.0094	3.90		90.74
Zinc	.0021	.0010	.41		85.4
					99.9

I. Electric Arc Furnace (Semi-Wet APC)

BPT	No Discharge
BAT	No Discharge

J. Electric Arc Furnace (Wet APC)

BPT

	max.	avg.	Eff. mg/l	Raw mg/l	% Rem.
TSS	.0208	.0104	17.3	11456	99.84
pH	6.0 to 9.0				
Flow	72 gal/1000#s				
Fluoride					
Zinc				13.05	
	166.66 X #s/1000#s = mg/l			2018	

BAT

TSS	.0104	.0052	8.7		
Fluoride	.0083	.0042	7.0		99.92
Zinc	.0021	.0010	1.7		46.36
pH	6.0 to 9.0				99.92

K. Vacuum Degassing

	BPT max.	avg.	Eff. mg/1	Raw mg/1	% Removal
TSS	.0104	.0052	2.5	4[illegible].95	9[illegible].
pH	6.0 to 9.0				
Flow	247 gal/1000#s				
Zinc				4.89	
Manganese				28.36	
Lead				.93	
Nitrate				14.17	

485.4[illegible] X #s/1000#s = mg/l

BAT

TSS	.0052	.0026	1.3	9[illegible]
Zinc	.0010	.000[illegible]	.24	[illegible]
Manganese	.0010	.0005	.24	99.[illegible]
Lead	.00010	.0005	.024	97.[illegible]
Nitrate	.00[illegible]	.0047	2.2[illegible]	[illegible]

L. Continuous Casting

	BPT max.	avg.	Eff. mg/l	Raw mg/l	% Rem.
TSS	.0521	.0260	[illegible]	40.[illegible]	9[illegible].
Oil & Grease	.01[illegible]	.007[illegible]	.0[illegible]	21.25	99.[illegible]
pH	6.0 to 9.0				
Flow					
Flow	13[illegible] gal/1000#s				

5.[illegible] X #s/1000#s = mg/l

TSS	.0104	.0052	.2[illegible]	99.[illegible]
Oil & Grease	.0104	.0052	.2[illegible]	99.[illegible]
pH	6.0 to 9.0			

SUMMARY

BPT & BAT

for the

Iron and Steel Industry

mg/l

	BPI		BAT
	33.7		.1
		No Discharge	
	-		-
	.5		.005
	1.0		.005
		No Discharge	
	-		-
	-		-
		No Discharge	
	-		-
	-		-
	-		-

[illegible] 33.7 mg/l is high for BPT when limitations [illegible] for the electroplating industry.

	BPT		BAT
	2.58		.34
		No Discharge	
	-		-
	-		-
	.13		.01
		No Discharge	
	-		-
	-		-
		No Discharge	
	-		-
	-		-
	-		-

Ammonia	BPT	BAT
A.	157	7
B.	No Discharge	
[illegible]	-	-
[illegible]	6.5	.36
[illegible]	6.48	.32
[illegible]	No Discharge	
[illegible]	-	-
[illegible]	-	-
[illegible]	No Discharge	
[illegible]	-	-
[illegible]	-	-
	-	-

[illegible] mg/l and .36 and .32

	BPT	BAT
	1[illegible]	[illegible]

[illegible]	BPT	BAT
	13.[illegible]	1.2
	No Discharge	
	2.2	2.1
	-	-
	-	-
	No Discharge	
	-	-
	-	-
	No Discharge	
	-	-
	-	-
	.0[illegible]	.0[illegible]

[illegible]

	BPT	BAT
	[illegible]	[illegible]
	No Discharge	
	11	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	No Discharge	
	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	
	[illegible]	

[illegible]

Sulfide	BPT		BAT
A.	-		.17
B.		No Discharge	
C.	-		.065
D.	-		.17
E.	-		.0096
F.		No Discharge	
G.	-		-
H.	-		-
I.		No Discharge	
J.	-		-
K.	-		-
L.	-		-

Why not have the limitations more consistent?

Fluoride	BPT		BAT
A.			
B.			
C.	-		4.5
D.	-		.72
E.	-		-
F.		No Discharge	
G.	-		1.82
H.	-		1.74
I.		No Discharge	
J.	-		-
K.	-		-
L.	-		-

Permissible limits of 4.5 and 1.0 seem to be high. Why [illegible] [illegible] below 2.0 mg/l?

[illegible]	BPT		BAT
A.	-		-
B.		No Discharge	
C.	-		-
D.	-		-
E.	-		.16
F.		No Discharge	
G.	-		-
H.	-		-
I.		No Discharge	
J.	-		-
K.			.24
L.			

[illegible]	[illegible]	BAT
A.- [illegible]	-	-
[illegible]	-	3.[illegible]
[illegible]	-	-
[illegible]	-	-
[illegible]	-	2.[illegible]
[illegible]	-	-

	BPT	BAT
	-	-
	-	.41
[illegible]	No Discharge	
	-	1.[illegible]
	-	.24
	-	-

[illegible] limitations are [illegible]

	BPT	BAT
	-	-
	No Discharge	
	-	-
	-	-
	-	-
	No [illegible]	
	-	-
	-	-
	No Discharge	
	-	-
	-	[illegible]
	-	-

No [illegible]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December 21, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Draft Proposed Guidelines for "Pretreatment Standards for New Sources for the Soap and Detergent Category" Subcategories O, P, Q and R.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don F. Bloodgood

TO: ES&WQIAC Office

PROPOSAL TO AMEND THE NEW SOURCE PRETREATMENT STANDARDS FOR THE SOAP AND DETERGENT CATEGORY SUBCATEGORIES O, P, Q AND R

General Information:

The effluent limitations guidelines and new source standards of performance and pretreatment for the soap and detergent category were proposed on December 26, 1973 and promulgated on April 17, 1974. On July 11, 1974, the Soap and Detergent Association and Witco Chemical Corporation petitioned the U.S. Court of Appeals for the Third Circuit to review and set aside the "Order of the Administrator of EPA promulgating regulations establishing pretreatment standards for New Sources in the Spray Dried, Liquid, Dry Blending and Drum Dried Detergent Subcategories".

"At all stages of the development of the guidelines, from the contractor's draft report to the promulgation of final regulations, concern about the potential presence of refractory organic materials (e.g., ethoxylated phenols and alcohols) in the waste waters associated with the manufacture of industrial and institutional detergents and the need to limit discharge of such materials was expressed. As a result of this concern, and to control pass-through of such refractory materials discharged to publicly owned treatment works, New Source pretreatment standards containing limitations on COD were developed and promulgated for four Subcategories: manufacture of spray dried detergents, manufacture of liquid detergents, manufacture of detergents by dry - blending, and manufacture of drum dried detergents."

"Though comments, information and data relative to such refractory materials were solicited at all stages of the development of guidelines, no input that could serve as a valid basis for pretreatment standards was received from the industry; hence it was necessary to base pretreatment standards on data compiled during the course of the contractor's study of the industry." "Subsequent to the promulgation of final regulations and the filing of the petition for judicial review, comments accompanied by an appreciable body of supporting data were received-----."

"After careful review and evaluation of all available information and data relevant to the discharge of waste waters of the soap and detergent manufacturing industry to publicly owned treatment works, modifications of the New Source pretreatment standards are as follows:

1. The control parameters and limitations are referenced to discharge streams, not to finished products as in the promulgated regulations.

2. Pretreatment requirements are based on the COD/BOD_7 ratio and the COD content of the waste discharge stream from an affected source.

3. Pretreatment is required for discharge streams having both a COD/BOD_7 ratio greater than 10 and a COD content greater than a specified number of kilograms (the number varies by Subcategory) per metric ton (kkg) of anhydrous product.

4. Pretreatment is not required for discharge streams having either a COD/BOD_7 ratio no greater than 10 to 1 or a COD content no greater than the specified number of kilograms per metric ton of anhydrous product."

5. The BOD_7 means the biochemical oxygen demand as determined by incubation at 20 degrees C for a period of 7 days using acclimated seed. Agitation employing a magnetic stirrer set at 200 to 500 rpm may be used.

Subcategories Amended:

Subcategory [illegible] - Manufacture of Spray Dried Detergents
Subcategory [illegible] - Manufacture of Liquid Detergents
Subcategory [illegible] - Manufacture of Detergents by Dry Blending
Subcategory Q - Manufacture of Drum Dried Detergents

Pretreatment Limitations for New Sources:

Table I shows the limitations as given in the Proposed Guideline. There are no rates of flow indicated and consequently it is impossible to form an opinion on the concentration limitations.

Economic Impact:

The action memorandum states that the new proposal is expected to have little or no effect in regard to the impact on the industry.

Technology for Compliance:

The action memorandum states "It is still anticipated that the technology employed to comply with the pretreatment standards will consist of good in-plant control (housekeeping, water conservation, recycle of recovered products, etc.) and no specialized end-of-pipe pretreatment facilities will be required.

Comments and Recommendations:

1. In the definition of the BOD_7 it is not clear as to the meaning of "Agitation employing a magnetic stirrer set at 200 to 500 rpm shall be used." Does it mean in the preparation of the dilution, during incubation, or during final titration?

2. Rates of flow are essential if an appraisal of the limitations is to be made.

3. It is difficult to comprehend whether the action memorandum statement "no specialized end-of-pipe treatment will be required" means no end-of-pipe treatment will be required.

4. What interpretation should be put on the following statement from the action memorandum; 1. The control parameters and limitations are referenced to discharge streams, not to finished products as in the promulgated regulation"?

5. The information given in the proposed regulations lines 84 through [illegible] is not sufficiently convincing that the 10 to 1 ratio is substantiated and established as a protective limitation to municipal wastewater treatment plants and the streams receiving the municipal plant effluent.

6. The COD test measures a quantity of organic material but does not determine whether it is good or bad for the treatment plant or the receiving stream. Why do we worry if the pollutant is inert to biological decomposition and is not harmful to the environment?

7. What compounds are being measured by the COD test?

cc: Director, Effluent Guidelines Division

PURDUE UNIVERSITY

TABLE I
PRETREATMENT LIMITATIONS FOR NEW SOURCE SOAP & DETERGENT CATEGORY

Subcategory O, Spray Dried, (a) Waste streams having a value of COD
BOD7 of 10,000 or less with COD contents
2.40 kg/kkg of anhydrous product

(1) Normal Operation

BOD5	no limitation
COD	no limitation
TSS	no limitation
surfactants	no limitation
Oil & Grease	no limitation
pH	no limitation

(2) For Air Quality Restricted Operation

BOD5	no limitation
COD	no limitation
TSS	no limitation
Surfactants	no limitation
Oil & Grease	no limitation
pH	no limitation

(3) For Fast Turnaround Operation

BOD5	no limitation
COD	no limitation
TSS	no limitation
Surfactants	no limitation
Oil & Grease	no limitation
pH	no limitation

Spray Dried (b) Waste streams having a value of [illegible]
BOD7 [illegible] than 2.40 kg/kkg

(1) Normal Operation

	[illegible]	[illegible]	
COD	.08	.07	kg/kkg or lb/1000
surfactants	no limitation		
Oil & Grease	no limitation		
BOD5	no limitation		
TSS	no limitation		
pH	no limitation		

TABLE I (CONT.)

Subcategory Q, Dry Blending (a) Wastes having a ratio of COD to
BOD$_7$ of 10.0 or less or a COD of
0.26 kg/kkg of anhydrous product

BOD$_5$, COD, TSS, Surfactants, Oil & Grease and pH
no limitation

(b) Waste having a ratio of COD to
BOD$_7$ greater than 10.0 and a
COD of more than 0.26 kg/kkg of
anhydrous product

COD, max day .14, 30 day avg .07 kg/kkg or lbs/1000 lbs
Surfactants, Oil & Grease, BOD$_5$, TSS and pH
no limitation

Subcategory R, Drum Dried (a) Wastes having a ratio of COD
to BOD$_7$ of 10.0 or less or a COD
content of 0.20 kg/kkg of anhydrous
product

BOD$_5$, COD, TSS, Surfactants, Oil & Grease and pH
no limitation

(b) Waste having a ratio of COD to
BOD$_7$ greater than 10.0 and a
COD of more than 0.20 kg/kkg
of anhydrous product

COD max day 0.10 30 day avg 0.05 kg/kkg or lb/1000 lb
Surfactants, Oil & Grease, BOD$_5$, TSS pH
no limitation

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TABLE I (CONT)

Subcategory P, Liquid Detergent
(1) Normal Operation

(a) For waste streams having a ratio of COD to BOD_7 of 10.0 or less or a COD of 1.10 Kg/KKg of anhydrous product

BOD_5	no limitation
COD	No limitation
TSS	No limitation
Surfactants	No limitation
Oil & Grease	No limitation
pH	No limitation

(2) Fast Turnaround Operation

(b) Waste streams having a ratio of COD to BOD_7 greater than 10.0 and a COD content of more than 1.10 Kg/KKg of anhydrous product.

(1) Normal Liquid Detergent Ops, max day 30-Day Avg

COD	.44	.22	Kg/KKg or lb/1000 lb
Surfactants	no limitation		
Oil & Grease	No limitation		
BOD_5	No limitation		
TSS	No limitation		
pH	No limitation		

(2) Turnaround automated fill
when number of turnarounds
exceeds 8 - - - - etc.

COD	.07	Kg/KKg or lb/1000 lb
Surfactants	No limitation	
Oil & Grease	No limitation	
BOD_5	No limitation	
TSS	No limitation	
pH	No limitation	

TABLE I (CONT.)

(2) Air Quality Restricted Operation (High rate of wet scrubbing)

	Max any day	avg 30 days	
COD	.50	.25	Kkg/kkg or lb/1000 lb.
Surfactants	no limitation		
Oil & Grease	no limitation		
BOD_5	no limitation		
TSS	no limitation		
pH	no limitation		

(3) For Fast Turnaround Operation of a spraytower, the maximum for any one day when the number of turnarounds exceed six in any particular 30 consecutive days shall be the sum of the appropriate value below and that from (A) or (B); and the average of daily values for thirty consecutive days shall be the value shown below multiplied by the number of turnarounds in excess of six and prorated to 30 days plus the appropriate value from paragraph (1) or (2).

COD	.27	kg/kkg or lb/1000 lb.
Surfactants	no limitation	
Oil & Grease	no limitation	
BOD_5	no limitation	
TSS	no limitation	
pH	no limitation	

COMMENTS & RECOMMENDATIONS ON RULE-MAKING PACKAGES

The comments and recommendations which are published on the next pages pertain to rule-making packages. The following industries are covered: pressed and blown glass, plastics and synthetic materials, grain mills, asbestos, cooling water intake structures, fertilizer, inorganic chemicals, phosphates, nonferrous metals, timber products, paint and printing ink formulating, rubber, organic chemicals, meat products, paving and roofing materials, preserved seafood processing, ferroalloy, canned and preserved seafood processing, and cane sugar.

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UNITED STATES [illegible]

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MEMORANDUM

SUBJECT: [illegible]

FROM : [illegible]

TO : [illegible]

The following [illegible]
Further details [illegible]

1. The requirement [illegible]
(Glass Containers) cannot be [illegible]
analytical procedure.

2. The requirement [illegible] oil [illegible]
(Machine Pressed or Blown [illegible])
prescribed analytical procedure.

3. Lack of uniformity [illegible]
will cause problems [illegible]
This is illustrated by the oil [illegible]
shown as follows:

Category	[illegible]
A. Glass Containers	[illegible]
B. Machine Pressed and Blown	[illegible]
C. [illegible]	[illegible]
D. [illegible]	[illegible]

[illegible]

	[illegible]	[illegible]	[illegible]	[illegible]
A. [illegible]				
[illegible]	22		[illegible]	[illegible]
B. [illegible]				
[illegible]	15	1.[illegible]	[illegible]	.[illegible]
C. T.V. Tubes	5	.35	0.7	.0[illegible]

cc: Al [illegible], [illegible] [illegible]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

August 21, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-making Package for Pressed and Blown Glass, August, 1974 (Additional Material)

FROM : Effluent Standards and Water Quality Information Advisory Committee (Don Bloodgood)

TO : ES&WQIAC Office

Pressed and Blown Glass Segment of the Glass Manufacturing Industry

There are 30 firms and 140 plants presently in operation manufacturing glass containers with the largest number in the Northeastern United States. There are over 70,000 employees and a production of 55,500 tons per day of pulled glass.

There are about 70 machine pressed and blown glass plants in the U.S. that have an average production of about 100 tons per day per plant.

There are about 30 plants manufacturing tubing and they pull about 100 tons of glass per day per plant.

There are approximately 10 television picture tube plants that pull about 229 tons of lgass per day per plant.

Incandescent lamp envelopes are produced in 18 plants in the U.S.. The average glass pulled is 212 tons per day per plant.

There are 50 handmade glassware plants in the U.S. that average about 4.0 tons per day of pulled glass.

Subcategories

1. Glass Container Manufacturing
2. Machine Pressed and Blown Glass Mfg.
3. Tubing Manufacturing
4. Television Picture Tube Envelope Mfg.
5. Incandescent Lamp Glass Mfg. (a) Forming (b) Frosting
6. Hand Pressed and Blown Glass Mfg.

Flows

1. Glass Containers		700 gal/ton
2. Machine Pressed and Blown	530 to 600 gal/ton	1360 gal/ton
3. Tubing		2000 gal/ton
4. Television Tubes		3000 gal/ton
5. Incandescent		
Forming		1080 gal/ton
Frosting	1300-	2000 gal/ton
6. Hand Pressed and Blown	40 gal/day-	10,000 gal/day

Major Parameters of Pollutional Significance

1. Fluoride
2. Ammonia
3. Lead
4. Oil
5. pH
6. Suspended Solids

Treatment Technology

Glass Container Mfg.

Alternative A

1. Sedimentation
2. Oil Removal

Alternative B

1. Recycle of Water
2. Dissolved Air Flotation of Blowdown

Alternative C

1. Diatomaceous Earth Filtration

Machine Pressed and Blown Glass Mfg.

Alternative A

1. Sedimentation
2. Oil Removal

Alternative B

1. Recycle of Water
2. Dissolved Air Flotation of Blowdown

Alternative C

1. Diatomaceous Earth Filtration

Television Picture Tube Envelope Mfg.

Alternative A

1. Lime precipitation of abrasive and acid polishing wastewaters
2. Coagulation and sedimentation
3. pH adjustment with sulfuric acid
4. Landfill disposal of solids

Alternative B

1. Sand Filtration

Alternative C

1. Activated Alumina Filtration

Incandescent Lamp Envelope Mfg.

Alternative A

1. Belt type oil skimmers on cullet wastewaters
2. Lime precipitation of fluoride in frosting wastewaters
3. Suspended Solids removal
4. Ammonia discharge is eliminated by separate disposal of concentrated etching solutions
5. Permanent storage of frosting solutions

Alternative B

1. Ammonia removal by steam stripping

Alternative C

1. Sand and activated Alumina Filtration

Hand Pressed and Blown Glass Mfg. - has at least six wastewater producing processes, they are: crack-off and polishing, grinding and polishing, machine cutting, alkali washing, acid polishing and etching.

Alternative A

1. Lime precipitation for fluoride and lead removal
2. Trenches for solids collection
3. Solid Waste Disposal

Alternative B

1. Batch precipitation and recarbonation

Alternative C

1. Sand Filtration

Alternative D

1. Activated Alumina Filtration

Data From

Plant Types	No. of Plants Listed	No. of Plants Visited	No. Plants Estimated
Glass Containers	82	3	140
Machine Pressed & Blown	13	2	70
Tubing	7	1	30
T.V. Picture Tube Envelope	5	2	10
Incandescent Lamp	5	1	18
Hand Pressed & Blown Glass	10	4	50

Raw Waste Loads-BPT-BAT- New Source Limitations and Percent Removals

(See modified Tables 5,6,7,8,9 and 10)

Comments on Guidelines

1. The requirement for an oil limitation of 3 mg/l for BATC(Glass Containers) cannot be monitored with present-day analytical procedures.

2. The requirement for an oil limitation of 5 mg/l for BAT (Machine Pressed or Blown Glass) cannot be monitored with present day analytical procedures.

3. Lack of uniformity in limitations for subcategory constituents will cause problems from the standpoint of equitable permits. Illustrated by the oil and suspended solids requirements shown as follows:

Category	BPT mg/l Oil	BPT mg/l Sus/Solids	BAT mg/l Oil	BAT mg/l Sus/Solids
Glass Containers	10	24	3	3
Machine Pressed and Blown	10	25	5	5
Glass Tubing	10	28	5	5
T.V. Picture Tubes	10	10	10	5
Incandescent Lamp				
Cullet Quenching	25	25	5	5
Frosting	--	25	--	5
Hand Pressed & Blown	--	25	--	5

4. Note the lack of uniformity for the fluorine and lead limitations

	BPT mg/l		BAT mg/l	
Category	Fluorine	Lead	Fluorine	Lead
Incandescent Lamp Frosting	20	--	2	--
Hand Pressed & Blown	15	1.0	2	.01
T.V. Tube	5	.35	0.7	.04

[illegible]

[illegible]TURING

					[illegible]		mg/l	[illegible]
Flow	2920	l/metric ton	700	gal/short ton 35gpd blowdown				
Temperature	60		11F					
[illegible]	7.5							
[illegible]	0.0145	kg/metric ton	0.029	lb/short ton	5 mg/l	—		[illegible]
[illegible]	0.145	kg/metric ton	0.29	lb/short ton	50 mg/l	—		[illegible]
Suspended solids	0.07	kg/metric ton	0.14	lb/short ton	24 mg/l	.14	24	.008
Oil	0.03	kg/metric ton	0.06	lb/short ton	10 mg/l	0.06	10	[illegible]

(a) Representative of typical glass container manufacturing waste water. Absolute value given for pH, increase over plant influent level given for other parameters.

assumed ~ 5% blowdown

% Reduction	BPT	BAT
Susp. Solids	0	99.4
Oil	0	98.7

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TABLE 6

RAW WASTE WATER (a)
MACHINE PRESSED AND BLOWN GLASS MANUFACTURING

						BPT mg/l	BAT mg/l
Flow	5630	l/metric ton	1350	gal/short ton			
Temperature	10C		18F	(33 gal/short ton of flow reduction)			
pH	7.8					6-9	6-9
BOD	0.028	kg/metric ton	0.056	lb/short ton	5 mg/l	—	—
COD	0.28	kg/metric ton	0.56	lb/short ton	50 mg/l	—	—
Suspended Solids	0.14	kg/metric ton	0.28	lb/short ton	25 mg/l	0.28 25	.00[illegible] 5
Oil	0.056	kg/metric ton	0.11	lb/short ton	10 mg/l	0.11 10	.00[illegible] 5

(a) Representative of typical machine pressed and blown glass manufacturing waste water. Absolute value given for pH, increase over plant influent level given for other parameters.

% Removal	BPT	BAT
Susp. Sol.	0	98.7
Oil	0	96.7

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TABLE [illegible]

RAW WASTE WATER (a)
GLASS TUBING MANUFACTURING

						BPT	BAT
Flow	8340	l/metric ton	2000	gal/short ton (5300/short ton for [illegible])			
Temperature	4.5C		8F				
pH	7.9					mg/l	[illegible]
COD	0.08	kg/metric ton	0.16	lb/short ton	10 mg/l	—	—
Suspended Solids	0.225	kg/metric ton	0.45	lb/short ton	27 mg/l	.46 28	.0002 5
Oil	0.085	kg/metric ton	0.17	lb/short ton	10 mg/l	.17 10	.0002 5

(a) Representative of typical glass tubing manufacturing waste waters. Absolute value given for pH, increase over plant influent level given for other parameters.

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TABLE 8

RAW WASTE LOAD (a)
TV PICTURE TUBE ENVELOPE MANUFACTURING

				BPT		BAT	
				[illegible]		[illegible]	
Flow	12,500 l/metric ton	3000 gal/short ton					
Temperature (b)	14C	25F					
pH	6-9			6-9		6-9	
COD	0.435 kg/metric ton	0.87 lb/short ton	35 mg/l	—			
Suspended Solids	4.2 kg/metric ton	8.4 lb/short ton	335 mg/l	.25	10	.12	5
Dissolved Solids	3.25 kg/metric ton	6.5 lb/short ton	260 mg/l	—	—	—	—
Oil	0.125 kg/metric ton	0.25 lb/short ton	10 mg/l	.25	10	.05	11
Fluoride	1.8 kg/metric ton	3.6 lb/short ton	143 mg/l	.13	5	.018	.
Lead	0.385 kg/metric ton	0.77 lb/short ton	30 mg/l	.009	.35	.0009	.1

(a) Represents typical TV picture tube envelope manufacturing process waste water prior to treatment. Absolute value given for pH; increase over plant influent level given for other parameters.

(b) Indication of approximate level only; insufficient data are available to define typical value.

% Removal	BPT	BAT
Suspended Solids	97.0	98.5
Oil	0	0
Fluoride	99.5	99.5
Lead	99.9	99.9

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TABLE 9

RAW WASTE WATER (a)
INCANDESCENT LAMP GLASS MANUFACTURING

Cullet Quenching

						BPT	mg/l	BAT	[illegible]
Flow	4500	l/metric ton	1080	gal/short ton					
Temperature	8C		14F						
pH	6.6					6-9		6-9	
COD	0.11	kg/metric ton	0.23	lb/short ton	25 mg/l	—		—	—
Suspended Solids	0.11	kg/metric ton	0.23	lb/short ton	25 mg/l	.23	25	.0[illegible]5	5
Oil	0.11	kg/metric ton	0.23	lb/short ton	25 mg/l	.25	25	[illegible]	[illegible]

Frosting

							[illegible]		
Flow	3420	l/metric ton	820	gal/short ton					
Temperature	38C		100F						
pH	3.0					6-9		6-9	
COD	0.085	kg/metric ton	0.17	lb/short ton	25 mg/l	—		—	
Suspended Solids	0.34	kg/metric ton	0.68	lb/short ton	100 mg/l	.17	25	.034	5
Fluoride	9.6	kg/metric ton	19.2	lb/short ton	2800 mg/l	.14	20	.014	2
Ammonia	2.2	kg/metric ton	4.4	lb/short ton	650 mg/l	.20	30	.21	31

(a) Representative of typical incandescent lamp glass manufacturing waste water. Absolute value given for pH and frosting temperature; increase over plant influent level given for other parameters.

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% Removal	BPT	BAT
Cullet Quenching – Suspended Solids	0	80
Oil	0	80
Frosting – Suspended Solids	75.[illegible]	95
Fluoride	99.3	99.9
[illegible]	[illegible]	[illegible]

TABLE [illegible]

RAW WASTE WATER (a)
HAND PRESSED AND [illegible] GLASS MANUFACTURING

Acid Polishing

Flow	9920	l/metric ton	2380	gal/short ton	
Temperature	2.8C		5F		
pH	3				
Suspended Solids	0.35	kg/metric ton	0.71	lb/short ton	36 mg/l
Lead	0.010	kg/metric ton	0.019	lb/short ton	0.96 mg/l
Fluoride	1.93	kg/metric ton	3.85	lb/short ton	194 mg/l

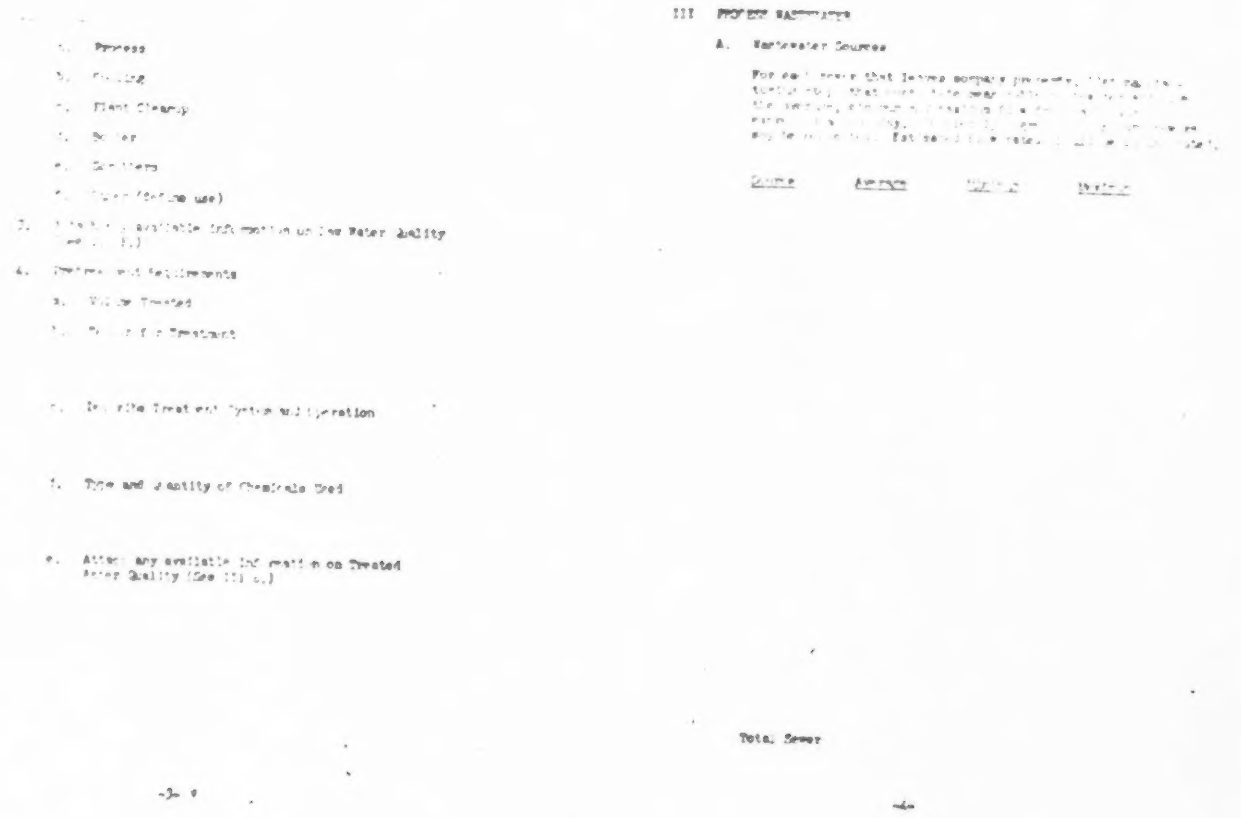
Grinding and Polishing

Flow	3460	l/metric ton	830	gal/short ton	
Temperature	2.8C		5F		
Suspended Solids	15	kg/metric ton	30	lb/short ton	4350 mg/l
Lead	0.086	kg/metric ton	0.17	lb/short ton	25 mg/l

Machine Cutting

Flow	10,880	l/metric ton	2610	gal/short ton	
Temperature	1.6C		3F		
pH	10				
Suspended Solids	28	kg/metric ton	56	lb/short ton	2580 mg/l
Lead	1.1	kg/metric ton	2.2	lb/short ton	100 mg/l

	BPT	BAT
Susp. Sol	25 mg/l	5 mg/l
Fluoride	15 mg/l	2 mg/l
Lead	1 mg/l	.1 mg/l
pH 6-9		



a. Process

b. Cooling

c. Plant Cleanup

d. Boiler

e. Sanitary

f. Other (Define use)

3. Attach any available information on Raw Water Quality (See III B.)

4. Treatment and Requirements

a. Volume Treated

b. Purpose for Treatment

c. Describe Treatment System and Operation

d. Type and Quantity of Chemicals Used

e. Attach any available information on Treated Water Quality (See III B.)

-3-

III PROCESS WASTEWATER

A. Wastewater Sources

For each source that leaves company property, list each [illegible] that [illegible] the [illegible] [illegible] Estimated flow rates [illegible]

Source	Average	Maximum	Minimum
Total Sewer			

-4-

FIGURE 1 (CONTD.)

GLASS

B. Is wastewater discharged to a surface stream or storm sewer or to a city sanitary sewer system?

C. Are wastewater characteristics appreciably different during start-up or shutdown than during normal operation?

D. Possibility of points of [illegible] of oil, cleaning agents, [illegible] that could enter the wastewater stream.

E. Treatment Methods

1. Wastewater volume and [illegible]

2. [illegible] for Treatment

3. Describe treatment system and operation

4. Type and Quantity of chemicals used

F. Wastewater Quality

Attach any available data on water quality, both before and after treatment, [illegible] solids, heavy [illegible] as outlined in [illegible]

G. Describe [illegible] methods of water conservation and/or waste [illegible] presently in use or anticipated.

H. Identify any air pollution, noise or solid waste resulting from [illegible] water control methods. How is solid waste disposed of?

I. Describe water pollution control methods being considered for future utilization.

-5-

J. Cost Information (related to water pollution control)

1. Treatment plant and/or equipment cost

2. Operating Costs (personnel, maintenance, etc.)

3. Power Costs

4. Estimated Equipment Life

IV COOLING WATER

A. Process steps requiring cooling water

B. Heat rejection requirements (BTU/hour)

C. Type of cooling system (once-through or recycle)

D. Water temperatures and flow rate

1. Input

2. Output

3. Flow Rate

E. Cooling tower or spray pond (circle which)

1. Blowdown Rate

2. Blowdown Control Method

3. Type and quantity of water treatment chemicals used

4. Attach any available information on blowdown water quality (See III E.)

F. Type and quantity of chemicals used for once-through cooling water treatment

V BOILER

A. Capacity

B. Attach any available information on blowdown rate and quality (See III E.)

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FIGURE 1 (CONTD.)

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PART A AND B PARAMETERS OF INTAKE WATER AND DISCHARGE.  BREAKDOWN BY PLANT

                 INF.      EFF.    CONC.                                                         LBS ADDED PER
         GPD/    CONC.     AVE.    MAX      LB/DAY INCREASE    MG/L INCREASE UNIT/DAY   PRODUCT UNIT
  MGD    P-UNIT MG/L      MG/L    MG/L     AVE          MAX   AVE   MAX              AVE        MAX     . SAMPLE TYPE

ITEM NO.    550. OIL AND GREASE

NAME= PLANT A                               PRODUCTION= 450.   TONS/DAY.NONE.GC                                     1 DATA POINTS
 0.56    1244.44 1.        17.      18.        74.7264 79.3968 16.      17.      450.     0.16605 0.17643COMP.24 HR. 6-18-72

NAME= PLANT B                               PRODUCTION= 525.   TONS/DAY.NONE.GC                                     1 DATA POINTS
 0.435   828.571 2.        6.       7.         14.5116 18.1395 4.       5.       525.     0.02764 0.03455GRAB. 1-15-74

NAME= PLANT C                               PRODUCTION= 500.   TONS/DAY.NONE.GC                                     1 DATA POINTS
 0.17    340.      1.5     7.1      8.4        7.93968 9.78281 5.6      6.9      500.     0.01587 0.01956COMP.24 HR. 1-25-74

NAME= PLANT D                               PRODUCTION= 600.   TONS/DAY.NONE.GC                                     1 DATA POINTS
 0.81    1350.   0.        11.      14.        74.3094 94.5756 11.      14.      600.     0.12384 0.15762GRAB. 1-5-74


 1.975   3763.01 4.5       41.1     47.4     171.487 201.895 36.6      42.9     2075.    0.33342 0.38818                       TOTAL
 0.49375 940.754 1.125     10.275   11.85    42.8717 50.4737 9.15      10.725   518.75   0.08335 0.09704                       AVER.
 0.26625 459.42  0.85391 4.97016 5.09477 36.6405 42.7503 5.46107 5.7011   62.5     0.07334 0.0814                        SIGMA
 0.81    1350.   2.        17.      18.      74.7264 94.5756 16.       17.    . 600.     0.16605 0.17643                        MAX.
 0.17    340.    0.        6.       7.       7.93968 9.78281 4.        5.       450.     0.01587 0.01956                        MIN.
 0.49375 940.754 1.125     10.275   11.85    42.8717 50.4737 9.15      10.725   518.75   0.08335 0.09704                       WT.AV.
```

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FIGURE 2

SAMPLE COMPUTER FORMAT

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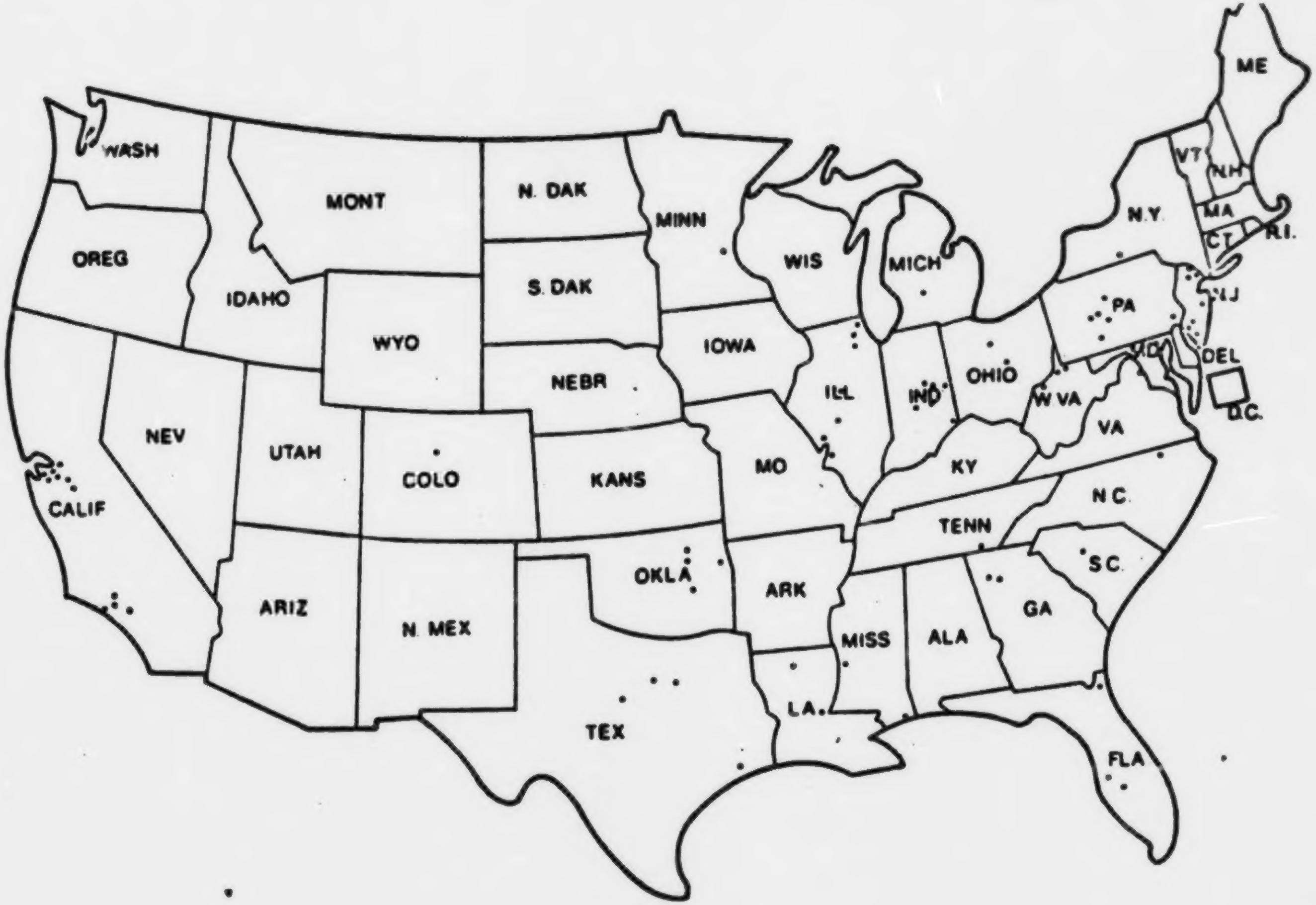

FIGURE 3

LOCATION OF PARTICIPATING GLASS CONTAINER MANUFACTURING PLANTS

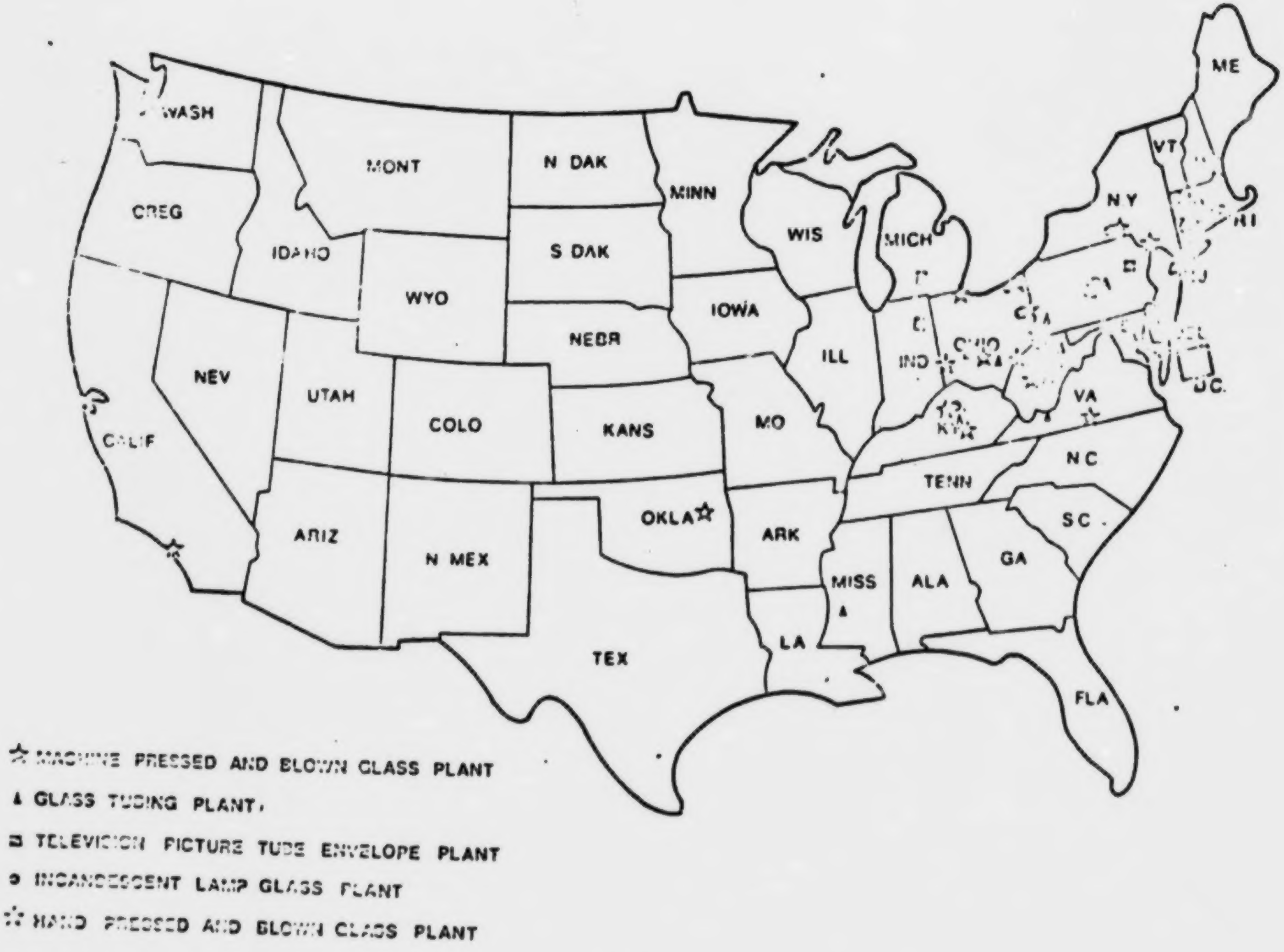

FIGURE 4
LOCATION OF PARTICIPATING PRESSED AND BLOWN GLASS MANUFACTURING PLANTS

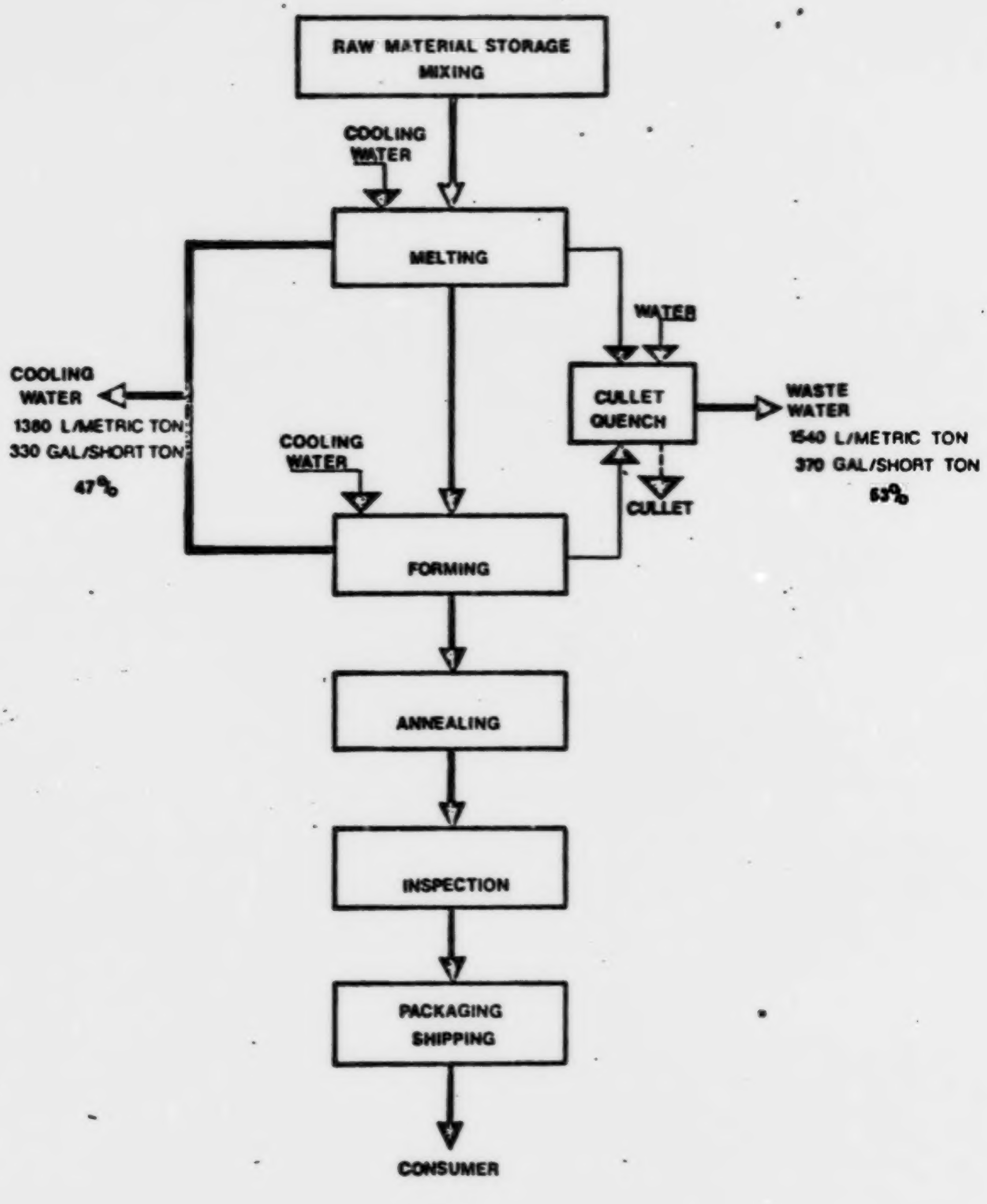

FIGURE 5

GLASS CONTAINER MANUFACTURING

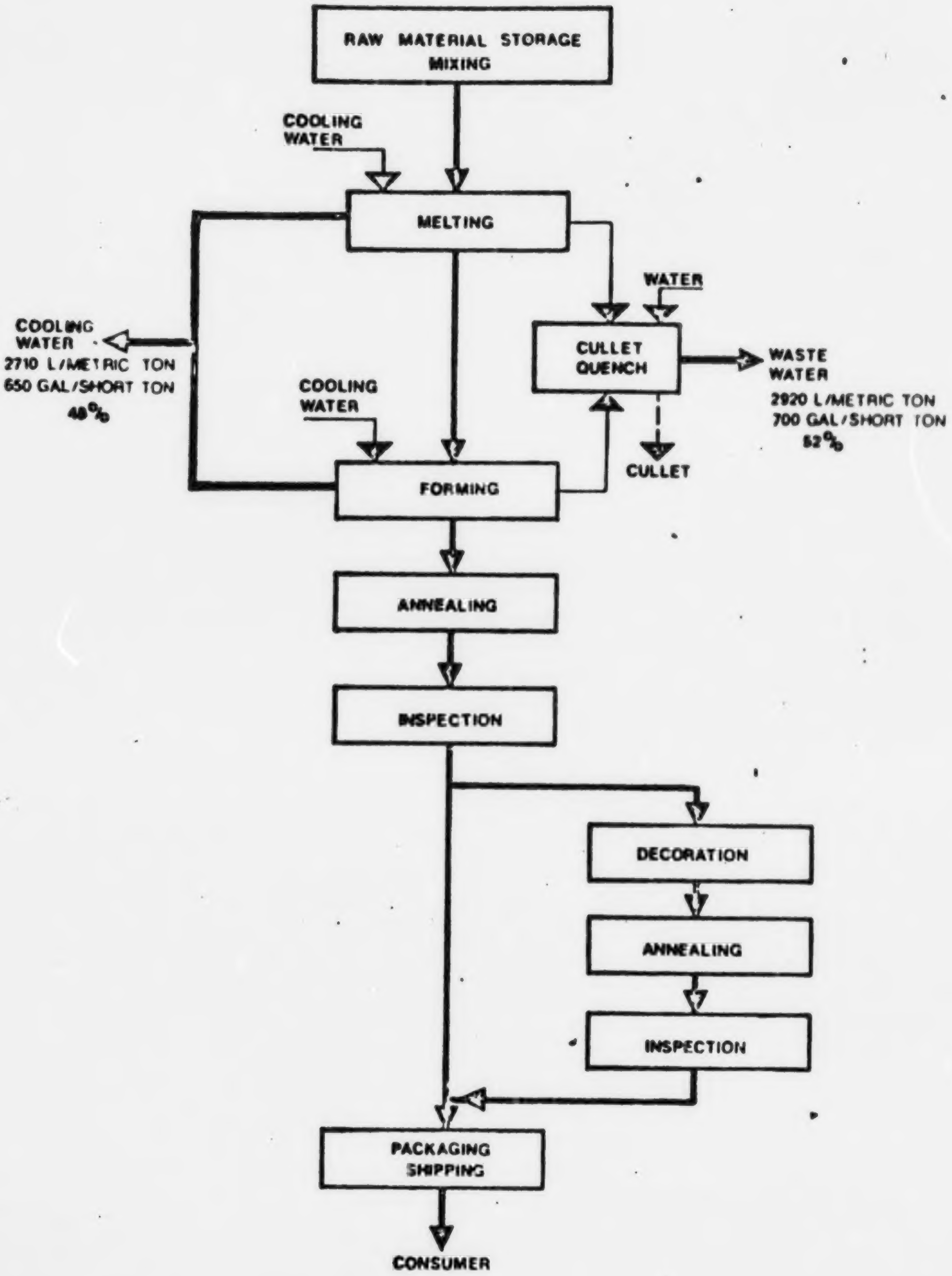

FIGURE 6

MACHINE PRESSED AND BLOWN GLASS MANUFACTURING

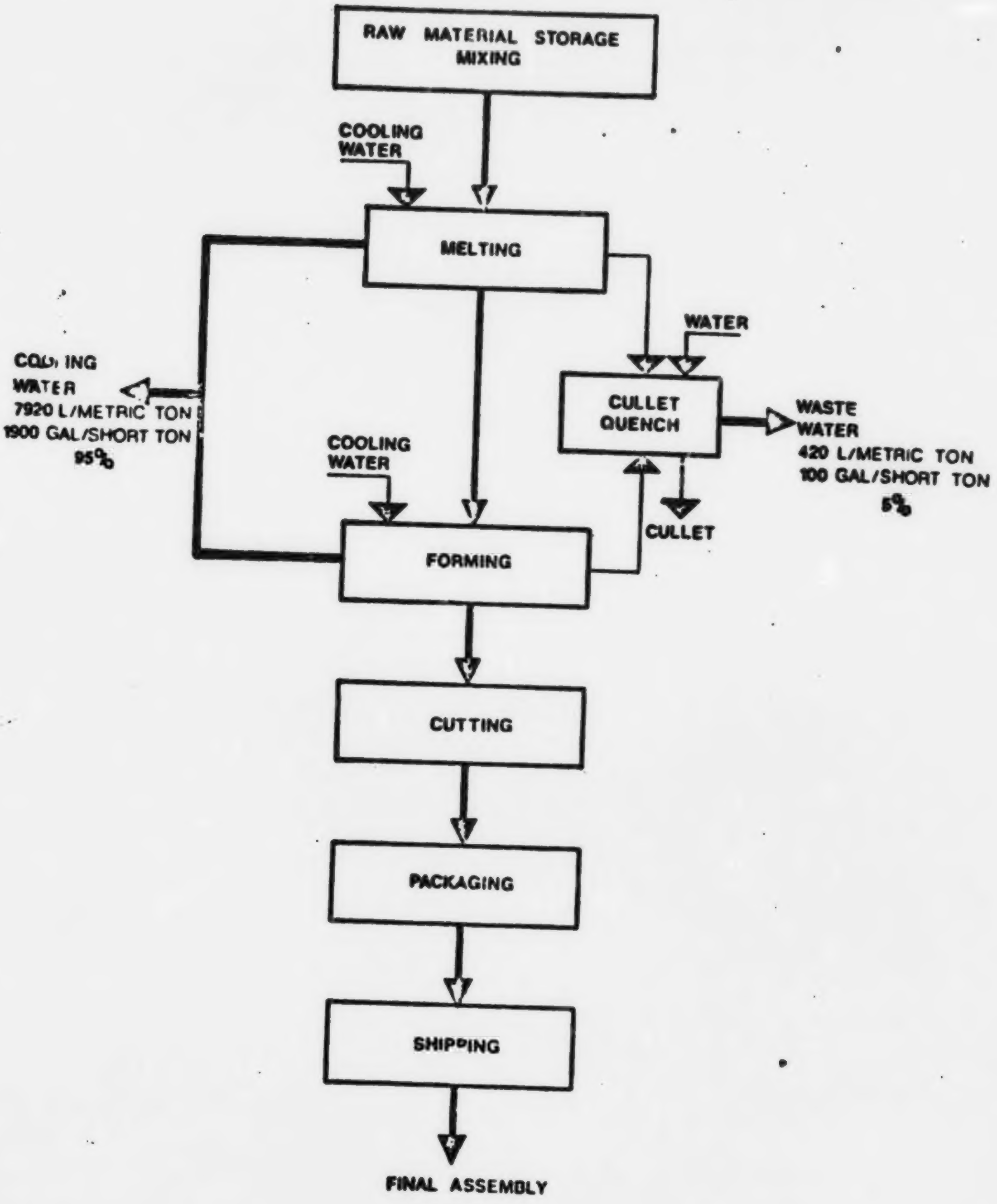

FIGURE 7

GLASS TUBING MANUFACTURING

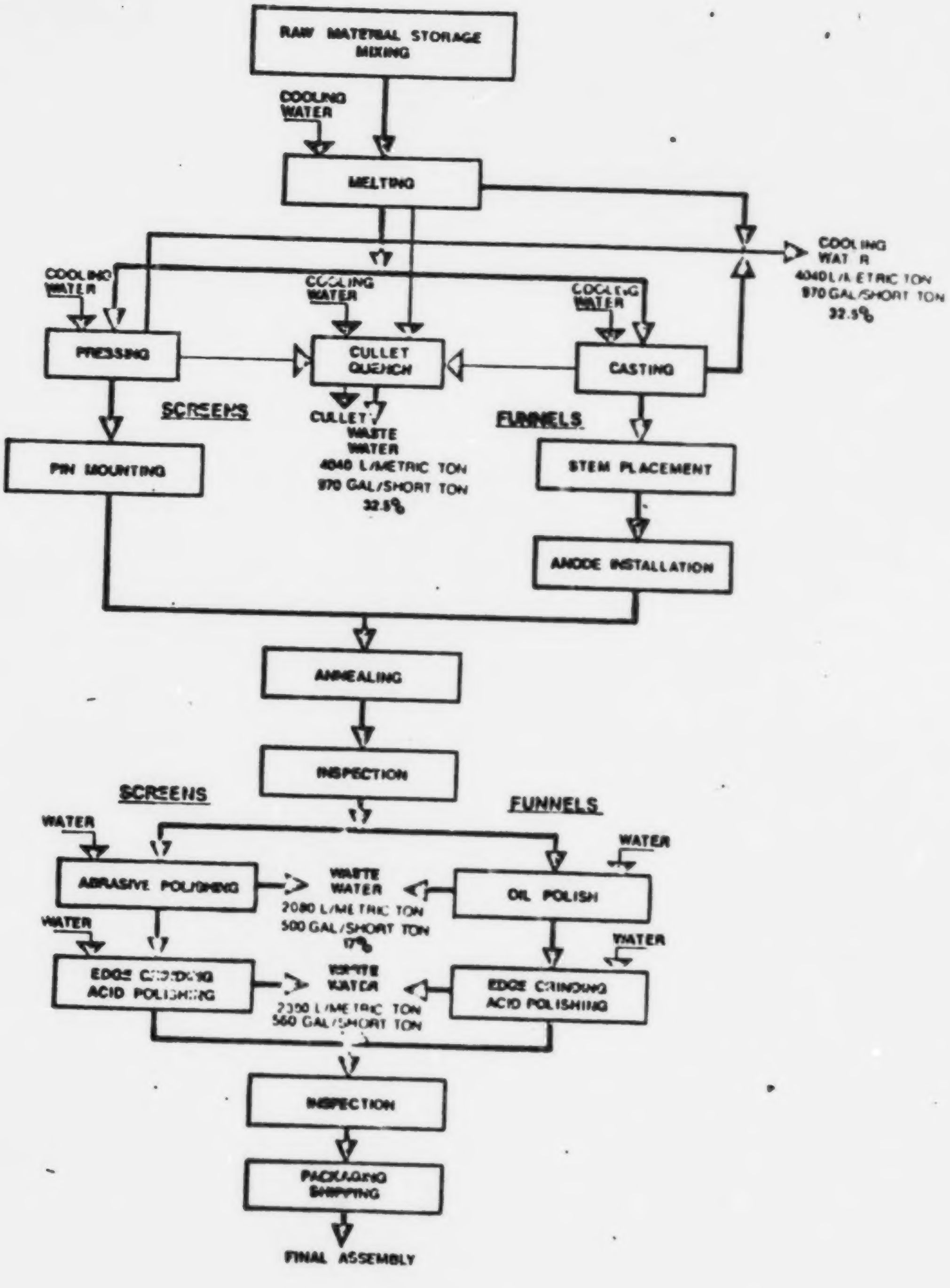

FIGURE 8

TELEVISION PICTURE TUBE ENVELOPE MANUFACTURING

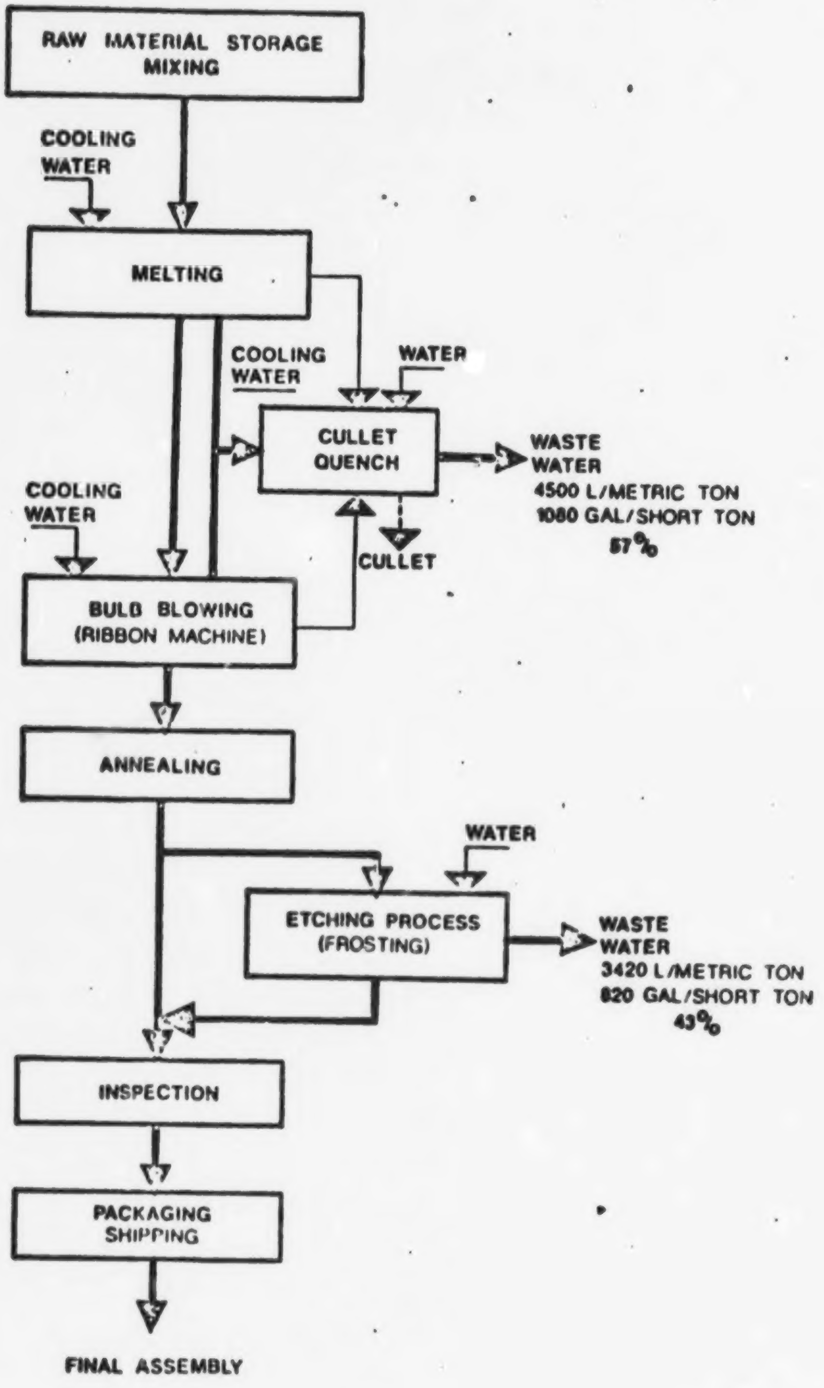

FIGURE 9

INCANDESCENT LAMP GLASS MANUFACTURING

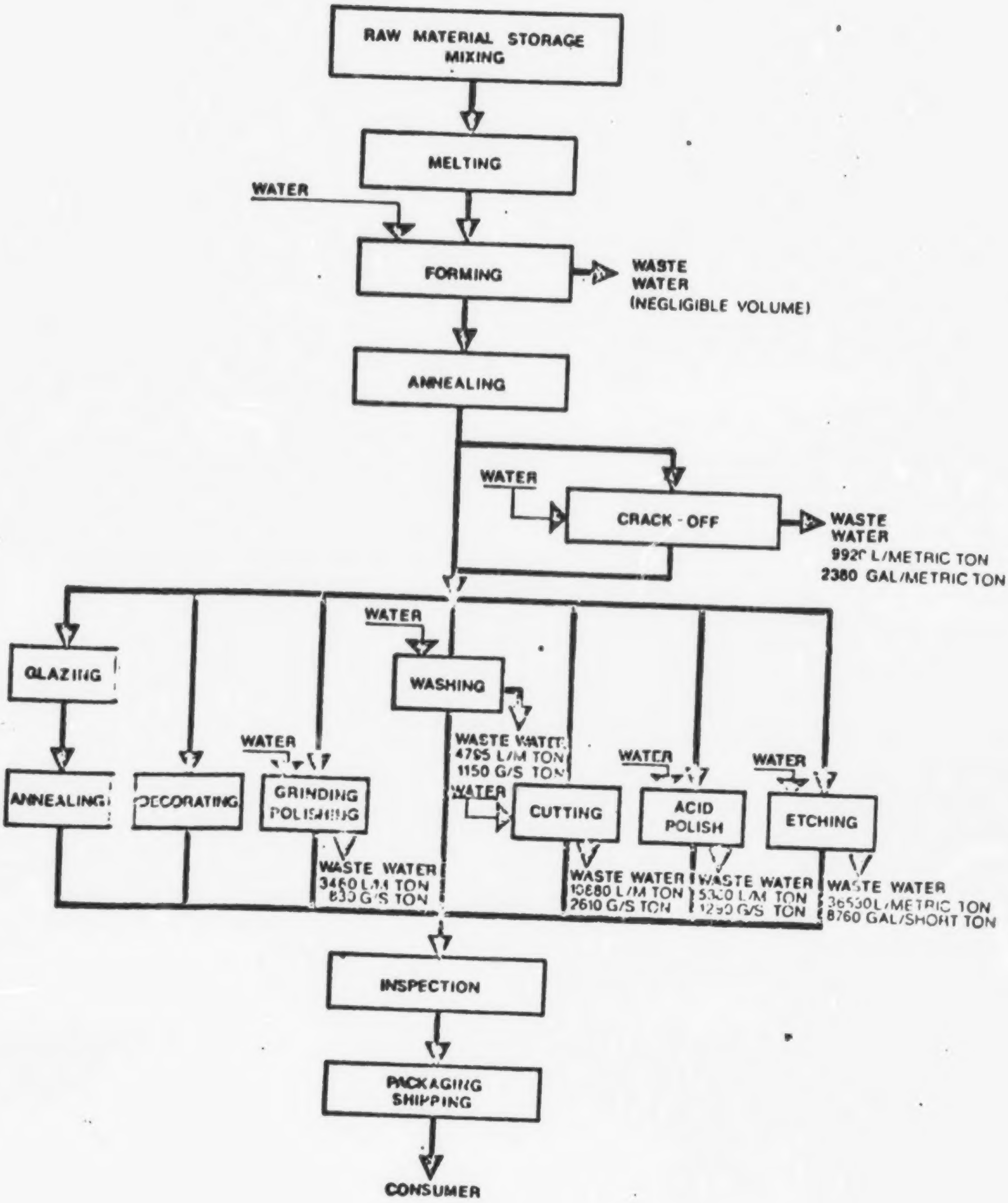
RAW MATERIAL STORAGE MIXING
MELTING
WATER
FORMING
WASTE WATER (NEGLIGIBLE VOLUME)
ANNEALING
WATER
CRACK - OFF
WASTE WATER 9920 L/METRIC TON 2380 GAL/METRIC TON
WATER
GLAZING
WASHING
WASTE WATER 4795 L/M TON 1150 G/S TON
ANNEALING
DECORATING
WATER
GRINDING POLISHING
WASTE WATER 3460 L/M TON 830 G/S TON
WATER
CUTTING
WASTE WATER 10880 L/M TON 2610 G/S TON
WATER
ACID POLISH
WASTE WATER 5380 L/M TON 1290 G/S TON
WATER
ETCHING
WASTE WATER 36530 L/METRIC TON 8760 GAL/SHORT TON
INSPECTION
PACKAGING SHIPPING
CONSUMER

FIGURE 10

HAND PRESSED AND BLOWN GLASS MANUFACTURING

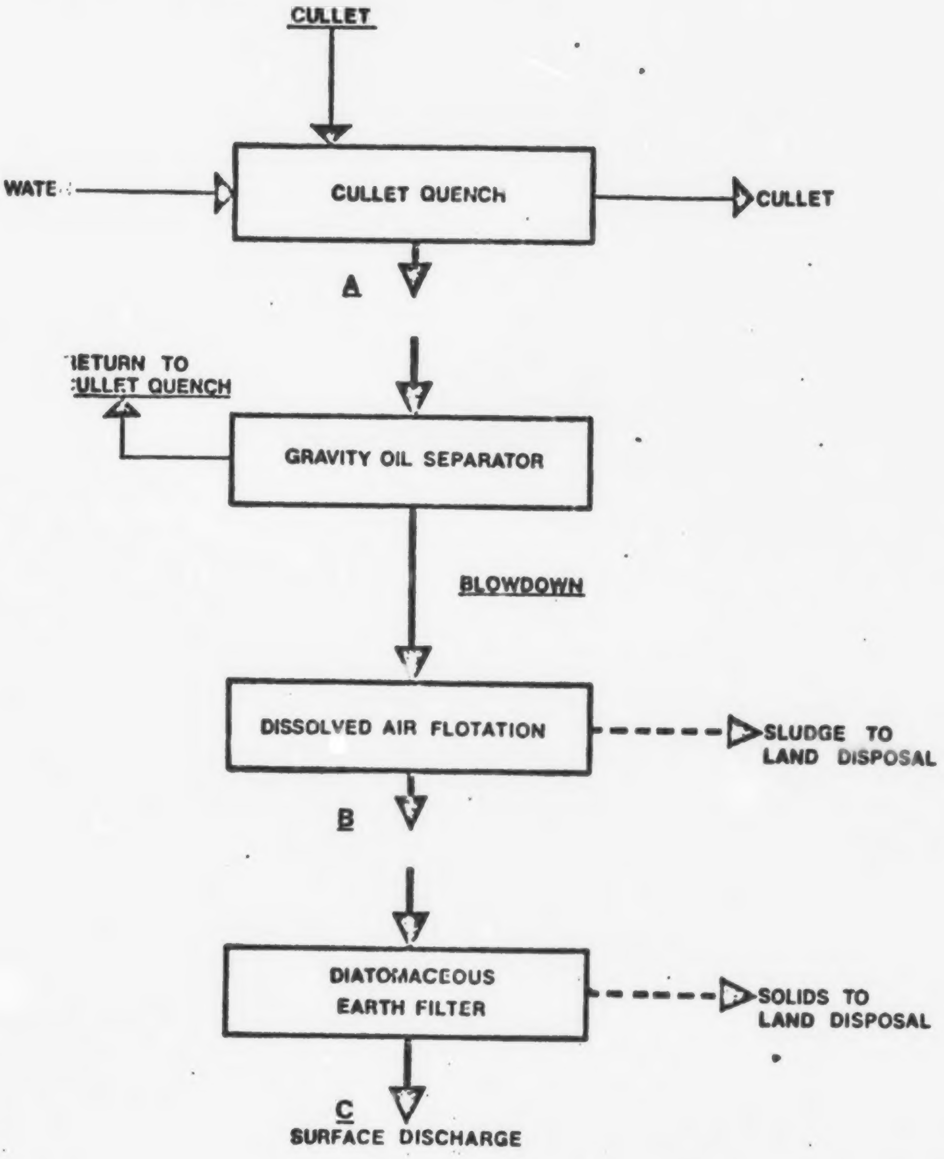

FIGURE 11

WASTE WATER TREATMENT

GLASS CONTAINER MANUFACTURING

MACHINE PRESSED AND BLOWN GLASS MANUFACTURING

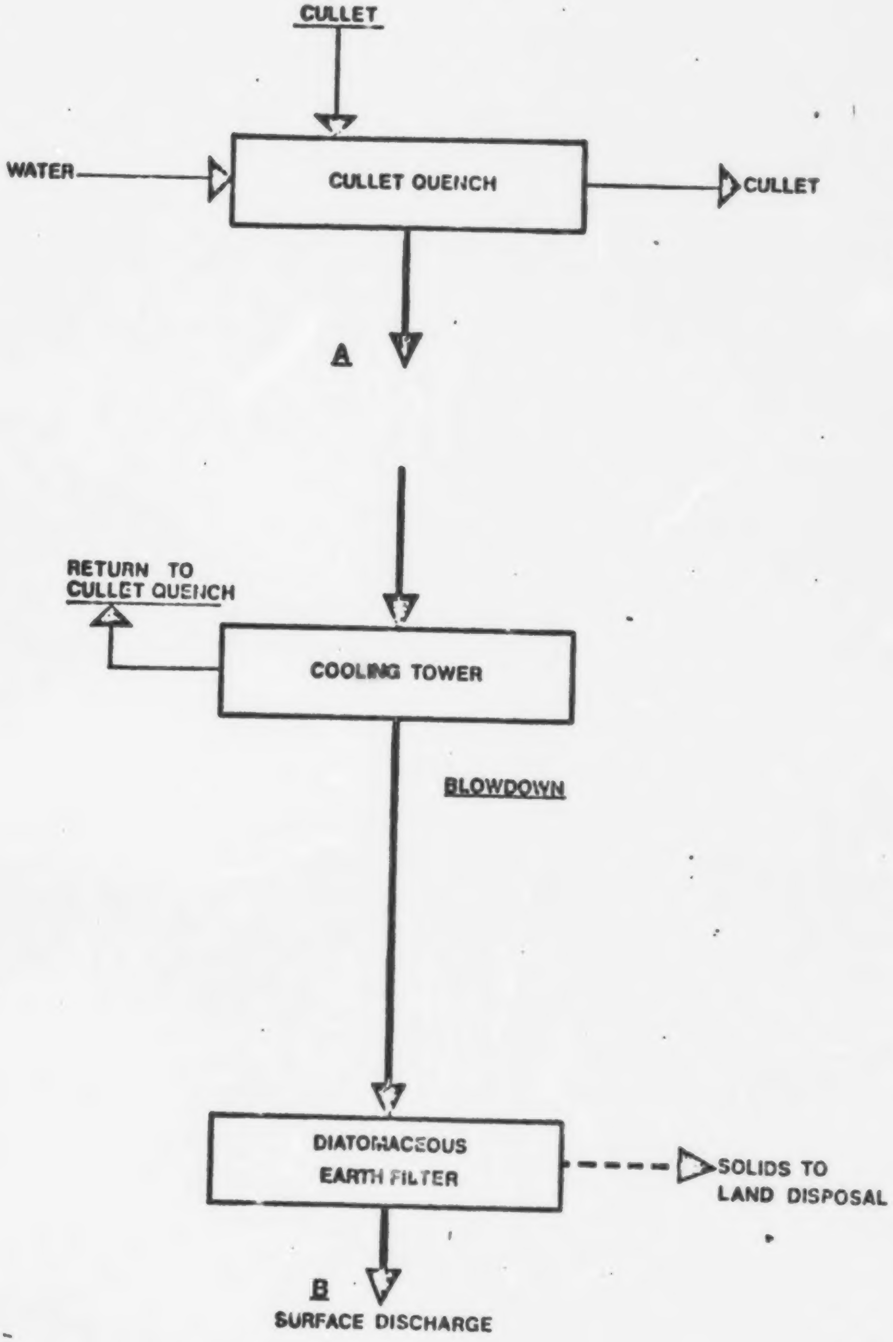

FIGURE 12

WASTE WATER TREATMENT

GLASS TUBING MANUFACTURING

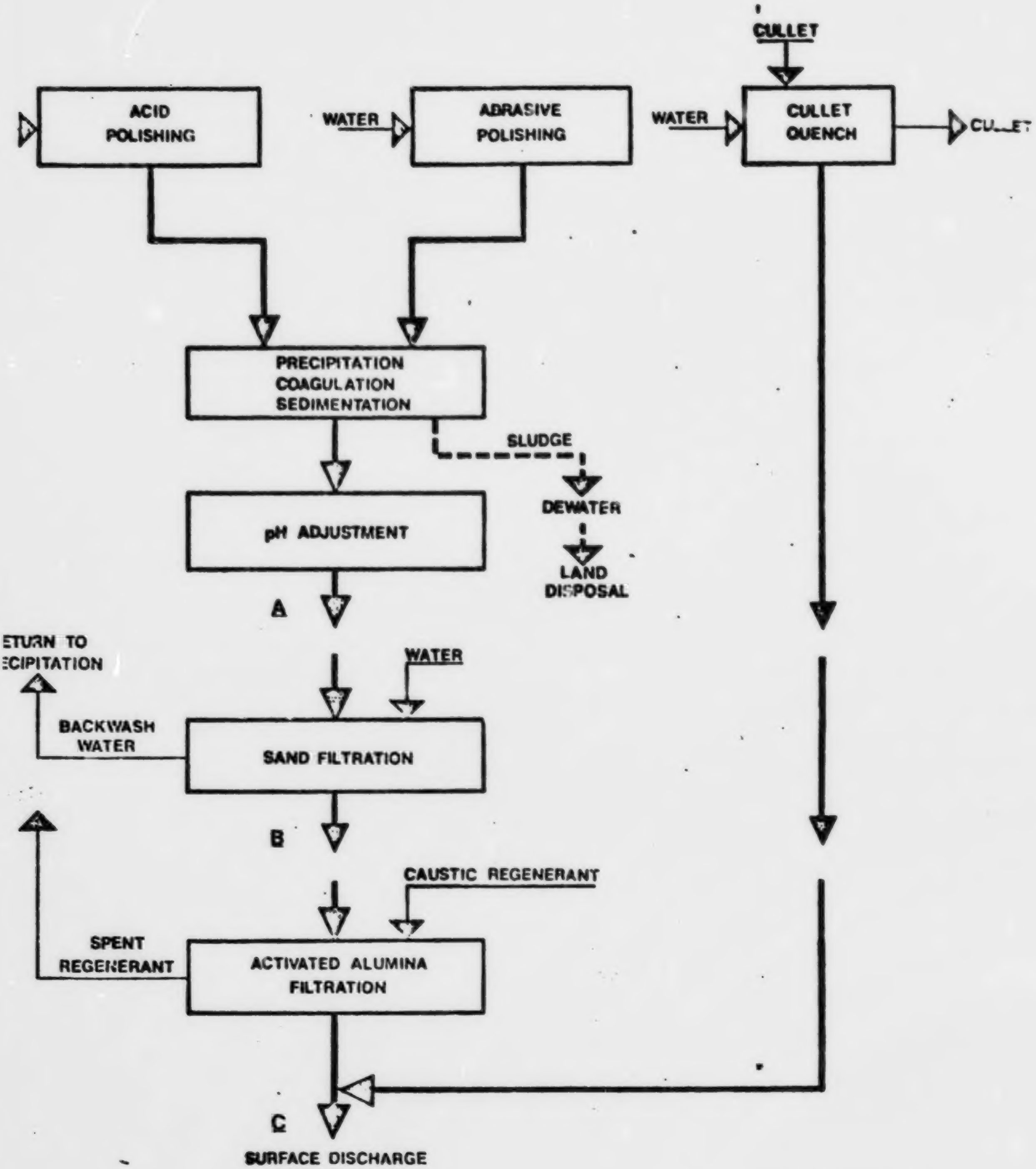

FIGURE 13

WASTE WATER TREATMENT

TELEVISION PICTURE TUBE ENVELOPE MANUFACTURING

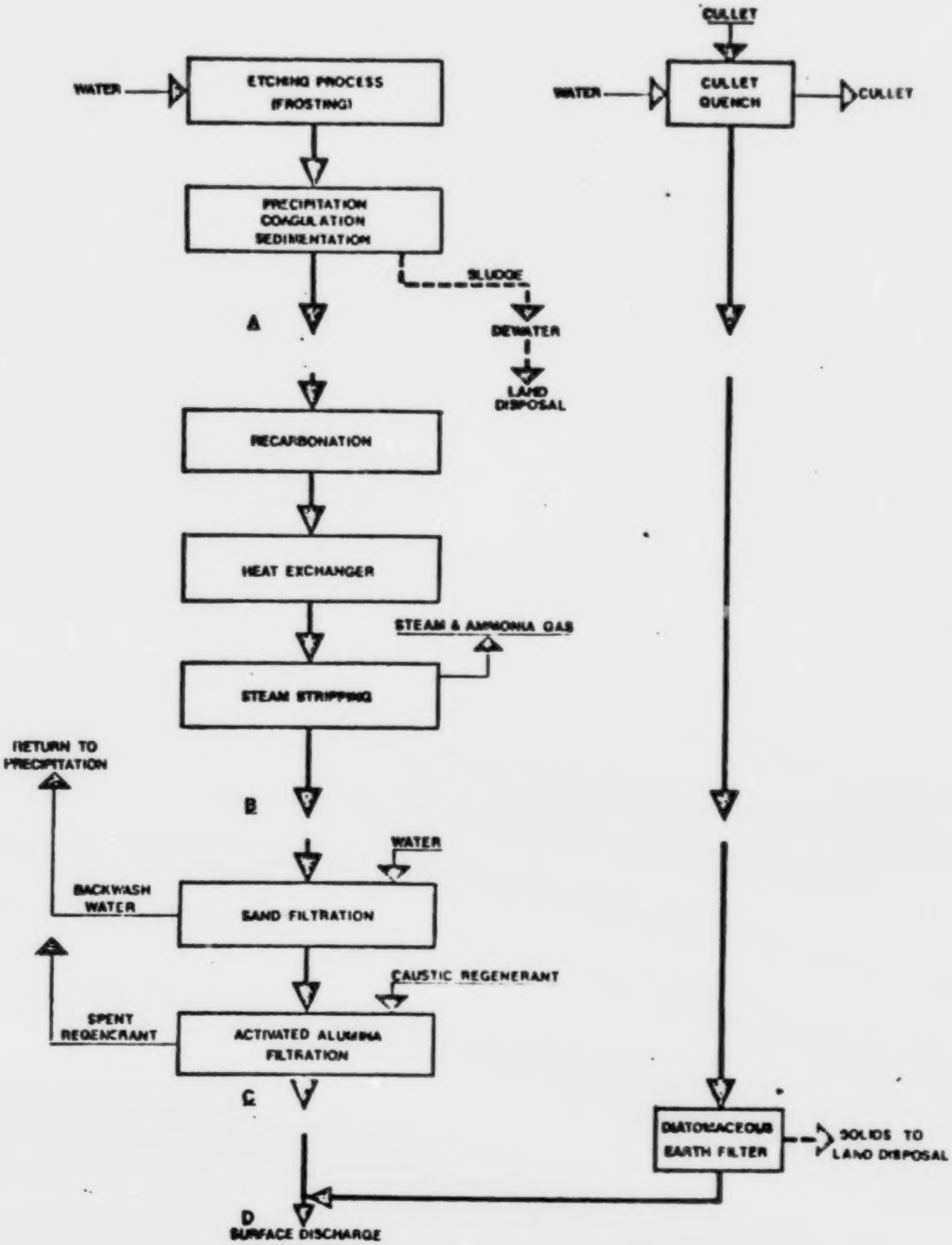

FIGURE 14
WASTE WATER TREATMENT
INCANDESCENT LAMP GLASS MANUFACTURING

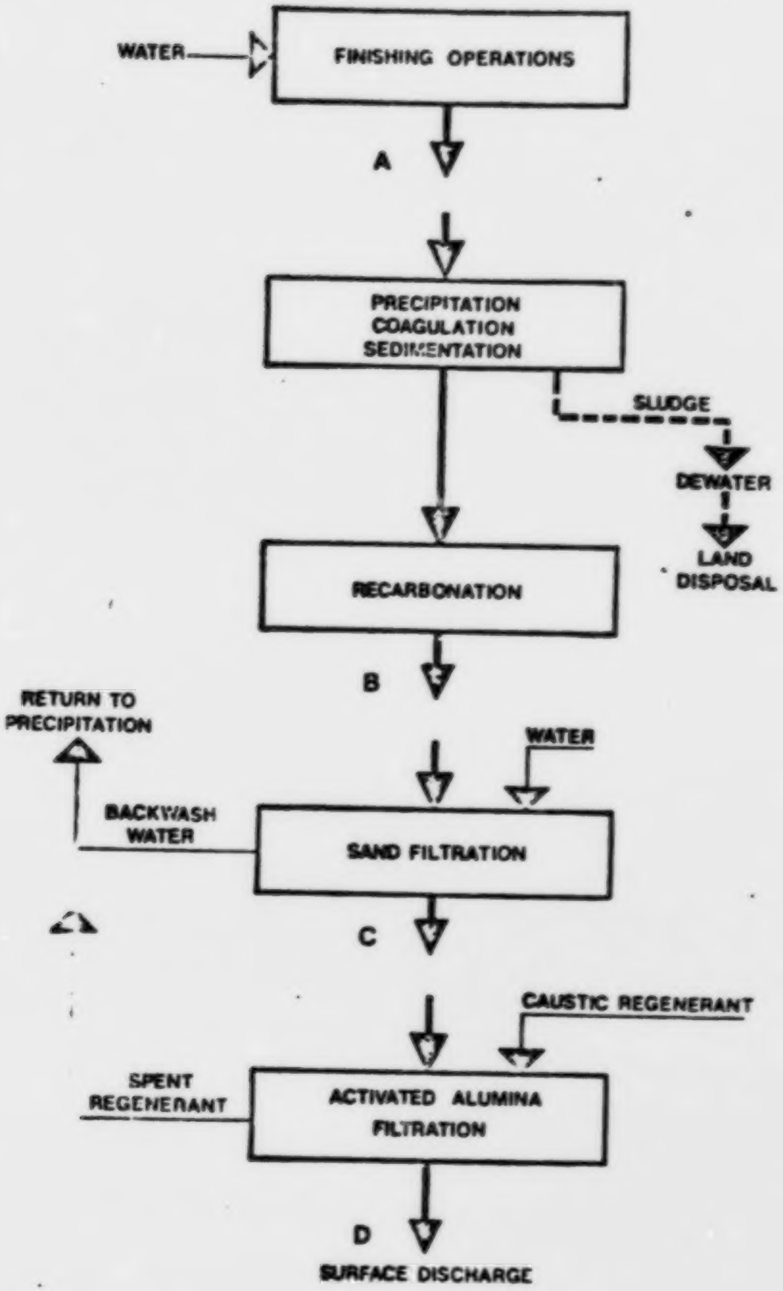

FIGURE 15

WASTE WATER TREATMENT

HAND PRESSED AND BLOWN GLASS MANUFACTURING

SECTION II

RECOMMENDATIONS

The recommended effluent limitations for pollutants of major significance are summarized below for the segments of the pressed and blown glass industry included in this document. The values listed are the maximum allowable average loading for any 30 consecutive calendar days. Maximum allowable daily averages are 2.0 times the values listed below.

The effluent limitations to be achieved with the Best Practicable Control Technology Currently Available are as follows:

BPT

	Suspended Solids	Oil	Fluoride	Lead	Ammonia
Glass Containers					
g/metric ton	70	30	-	-	-
(lb/short ton)	0.14	0.06	-	-	-
Machine Press and Blown Glass					
g/metric ton	140	56	-	-	-
(lb/short ton)	0.28	.11	-	-	-
Glass Tubing					
g/metric ton	230	85	-	-	-
(lb/short ton)	0.46	0.17	-	-	-
Television Picture Tube Envelopes					
g/metric ton	130	130	65	4.5	-
(lb/short ton)	0.25	0.25	0.13	0.009	-
Incandescent Lamp Envelopes					
Forming					
g/metric ton	110	110	-	-	-
(lb/short ton)	0.23	0.23	-	-	-

NOTICE: THESE ARE TENTATIVE RECOMMENDATIONS BASED UPON INFORMATION IN THIS REPORT AND ARE SUBJECT TO CHANGE BASED UPON COMMENTS RECEIVED AND FURTHER INTERNAL REVIEW BY EPA.

	Suspended Solids	Oil	Fluoride	Lead	Ammonia
[illegible]ing					
g/metric ton (frosted)	85	-	68	-	100
(lb/short ton) (frosted)	0.17	-	0.14	-	0.20
[illegible] Pressed and					
mg/l	25	-	15	1.0	-
pH	Between 6.0 and 9.0 (all subcategories)				

[illegible] the Best Available Control Technology Economically Achievable, the effluent limitations are as follows:

	Suspended Solids	Oil	Fluoride	Lead	Ammonia
[illegible] Containers					
g/metric ton	0.4	0.4	-	-	-
(lb/short ton)	0.0008	0.0008	-	-	-
[illegible] Pressed [illegible] Glass					
g/metric ton	1.8	1.8	-	-	-
(lb/short ton)	0.0036	0.0036	-	-	-
[illegible] Tubing					
g/metric ton	0.1	0.1	-	-	-
(lb/short ton)	0.0002	0.0002	-	-	-
[illegible] Picture [illegible] Envelope					
g/metric ton	60	230	9	0.45	-
(lb/short ton)	0.12	[illegible]	0.018	0.0009	-
Incandescent Lamp Envelopes Forming					
g/metric ton	23	23	-	-	-
(lb/short ton)	0.045	0.045	-	-	-

[illegible] ARE TENTATIVE RECOMMENDATIONS BASED UPON [illegible] THIS REPORT AND ARE SUBJECT TO CHANGE BASED [illegible] RECEIVED AND FURTHER INTERNAL REVIEW BY EPA.

	Suspended Solids	Oil	Fluoride	Lead	Ammonia
Frosting					
g/metric ton (frosted)	17	-	7	-	100
(lb/short ton) (frosted)	0.034	-	0.014	-	0.21
Hand Pressed and Blown					
mg/l	5	-	2	0.1	-
pH	Between 6.0 and 9.0 (all subcategories)				

Recommended effluent limitations and standards of performance for new point sources are the Best Available Control Technology Economically Achievable.

NOTICE: THESE ARE TENTATIVE RECOMMENDATIONS BASED UPON INFORMATION IN THIS REPORT AND ARE SUBJECT TO CHANGE BASED UPON COMMENTS RECEIVED AND FURTHER INTERNAL REVIEW BY EPA.

TABLE 1

GLASS CONTAINER PLANTS

COMPANY NAME	PLANT LOCATION
Anchor Hocking	Jacksonville, Fla.
	Houston, Texas
	Gurnee, Ill.
	Connellsville, Pa.
	Salem, N. J.
	Winchester, Ind.
	San Leandro, Calif.
Ball	Mundelein, Ill.
	El Monte, Calif.
Brockway Glass	Muskogee, Okla.
	Clarksburg, W. Va.
	Lapel, Ind.
	Ada, Okla.
	Freehold, N. J.
	Zanesville, Ohio
Chattanooga Glass	Chattanooga, Tenn.
	Corsicana, Texas
	Gulfport, Miss.
	Mt. Vernon, Ohio
	Keyser, W. Va.
[illegible] Glass	Wheat Ridge, Colo.
[illegible] orbes Glass	Marion, Ind.
[illegible] Glass Works	Salem, N. J.
[illegible] ontainers	Indianapolis, Ind.
	Danville, Conn.
	Jackson, Miss.
	Parker, Pa.
	Marienville, Pa.
	Knox, Pa.
	Forest Park, Ga.
	Palestine, Texas
	Antioch, Calif.
	Gas City, Ind.
	Hayward, Calif.
	Vernon, Calif.

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TABLE 1 (Contd.)

GLASS CONTAINER PLANTS

COMPANY NAME	PLANT LOCATION
Glenshaw Glass	Glenshaw, Pa.
Kerr Glass Mfg.	Millville, N. J.
	Plainfield, Ill.
	Dunkirk, Ind. ✓
	Santa Ana, Calif.
	Sand Springs, Okla.
Latchford Glass	Los Angeles, Calif.
Laurens Glass	Henderson, N. C.
	Laurens, S. C.
	Ruston, La.
Liberty Glass	Sapulpa, Okla.
Madera Glass	Madera, Calif.
Maryland Glass	Baltimore, Md.
Metro Containers	Jersey City, N. J.
	Carteret, N. J.
	Dolton, Ill.
	Washington, Pa.
Midland Glass	Shakopee, Minn.
Northwestern Glass	Seattle, Wash.
Obear-Nestor	E. St. Louis, Ill.
	Lincoln, Ill.
Pierce Glass	Port Allegany, Pa.
Owens-Illinois	Huntington, W. Va.
	Fairmont, W. Va.
	Alton, Ill.
	Streator, Ill.
	Gas City, Ind. ✓
	Bridgeton, N. J.
	Waco, Texas
	Oakland, Calif.

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TABLE 1 (Contd.)

GLASS CONTAINER PLANTS

COMPANY NAME	PLANT LOCATION
Owens-Illinois (Contd.)	Clarion, Pa.
	Los Angeles, Calif.
	Brockport, N. J.
	Charlotte, Mich.
	New Orleans, La.
	Atlanta, Ga.
	North Bergen, N. J.
	Lakeland, Fla.
	Portland, Ore.
	Tracy, Calif.
Puerto Rico Glass	San Juan, P. R.
Thatcher Glass Mfg.	Lawrenceburg, Ind. ✓
	Saugus, Calif.
	Elmira, N. Y.
	Whoaton, N. J.
	Tampa, Fla.
	Streator, Ill.

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TABLE 2

PRESSED AND BLOWN GLASS PLANTS

Machine-Pressed and Blown Glassware Plants

COMPANY NAME	PLANT LOCATION
Anchor Hocking	Lancaster, Ohio (Plant #1) Lancaster, Ohio (Plant #2)
Brockway Glass	Clarksburg, W. Va.
Corning Glass Works	Corning, N. Y. Muskogee, Okla. Greenville, Ohio Danville, Va. Harrodsburg, Ky.
Federal Glass	Columbus, Ohio
General Electric	Niles, Ohio Somerset, Ky.
Owens-Illinois	Toledo, Ohio Walnut, Calif.

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Tubing Plants

COMPANY NAME	PLANT LOCATION
Corning Glass Works	Blacksburg, Va. Danville, Ky.
General Electric	Logan, Ohio Jackson, Miss. Bridgeville, Pa.
GTE-Sylvania	Greenland, N. H.
Westinghouse Electric	Fairmont, W. Va.

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Television Picture Tube Envelope Plants

COMPANY NAME	PLANT LOCATION
Corning Glass Works	Albion, Mich. ✓ Bluffton, Ind. ✓ State College, Pa.
Owens-Illinois	Columbus, Ohio Pittston, Pa.

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TABLE 2 (Contd.)

PRESSED AND BLOWN GLASS PLANTS

Incandescent Lamp Envelope Plants

COMPANY NAME	PLANT LOCATION
Corning Glass Works	Central Falls, R. I. Wellsboro, Pa.
General Electric	Lexington, Ky. Niles, Ohio Cleveland, Ohio

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Hand-Pressed and Blown Glassware Plants

Colonial Glass	Deanville, W. Va.
Fenton Art Glass	Williamstown, W. Va.
Fostoria Glass	Moundsville, W. Va.
Gillinder Brothers	Port Jervis, N. Y.
Louie Glass	Weston, W. Va.
Minners Glass	Salem, W. Va.
Pilgrim Glass	Ceredo, W. Va.
Viking Glass	New Martinsville, W. Va. Huntington, W. Va.
West Virginia Glass Specialty	Weston, W. Va.

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TABLE 3

PLANTS VISITED

[illegible]	No. of Plants	Type of Data Obtained	
Container	3	(1)	(2)
chine Pressed and Blown	2	(1)	(2)
ing	1		(2)
V Picture Tube Envelope	2	(1)	(2)
ncandescent Lamp Envelope	1	(1)	(2)
and Pressed and Blown	4	(1)	(2)

1) - Individual process or subcategory.

) - End-of-pipe including all process and auxiliary wastes.

TABLE 4

PRESSED AND BLOWN GLASS MANUFACTURING
PRODUCTION DATA (a)

	Number of Plants	Average Plant Size (metric tons/day)	Range (metric tons/day)	Average Plant Size (short tons/day)	Range (short tons/day)
GC	140	387	122 - 1310	427	134 - 1444
MPB	70	91	40 - 349	100	44 - 384
TB	30	100	40 - 164	110	44 - 180
TV	10	208	141 - 254	229	156 - 280
L	18	192	140 - 245	212	155 - 270
HPB	50	3.6	0.7 - 6.5	4.0	0.8 - 7.2

(a) All production figures except HPB based on weight of glass pulled from furnace in tons; HPB based on weight of finished product.

GC - Glass Containers
MPB - Machine-Pressed and Blown
TB - Tubing
TV - Television Picture Tube Envelope
L - Incandescent Lamp Envelope
HPB - Hand-Pressed and Blown

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TABLE 10 (Cont.)

RAW WASTE WATER (a)
HAND PRESSED AND BLOWN GLASS MANUFACTURING

Alkali Washing

Flow	4795	l/metric ton	1150	gal/short ton	
Temperature (b)	57C		135F		
pH	11				
Suspended Solids	0.08	kg/metric ton	0.16	lb/short ton	17 mg/l

Acid Polishing

Flow	5380	l/metric ton	1290	gal/short ton	
Temperature (b)	46C		114F		
pH	2				
Suspended Solids	1.2	kg/metric ton	2.4	lb/short ton	220 mg/l
Lead	0.17	kg/metric ton	0.33	lb/short ton	31 mg/l
Fluoride	10.6	kg/metric ton	21.3	lb/short ton	1980 mg/l

Etching

Flow	36,530	l/metric ton	8760	gal/short ton	
Temperature (b)	33C		91F		
pH	4				
Suspended Solids	0.29	kg/metric ton	0.58	lb/short ton	8 mg/l
Lead	0.29	kg/metric ton	0.58	lb/short ton	8 mg/l
Fluoride	17	kg/metric ton	34	lb/short ton	460 mg/l

(a) Representative of observed hand pressed and blown glass manufacturing waste water. Absolute value given for pH, increase over plant influent level for other parameters.

(b) Controlled temperature required for the process; therefore, absolute temperature given.

TABLE 11

CONCENTRATION OF WASTE WATER PARAMETERS PRESSED AND BLOWN GLASS MANUFACTURING

	TYPICAL RAW WASTE WATER CONCENTRATION (a)			
	Glass Container	Machine Pressed and Blown	Tubing	Television Picture Tube Envelope
Temperature C	6	8	4.5	8
pH	7.5	7.8	7.9	
BOD, mg/1	5	5		
COD, mg/1	50	50	10	35
Suspended Solids, mg/1	24	25	27	335
Oil, mg/1	10	10	10	10
Dissolved Solids, mg/1				260
Fluoride, mg/1				143
Lead, mg/1				30

(a) Increase over background concentration for all parameters except for pH.

TABLE 12

CONCENTRATION OF WASTE WATER PARAMETERS
INCANDESCENT LAMP GLASS MANUFACTURING

	TYPICAL RAW WASTE WATER CONCENTRATION (a)	
	Cullet Quenching	Frosting Rinse Water
Temperature C	8	38(b)
pH	8.6	3.0
COD, mg/1	25	25
Suspended Solids, mg/1	25	100
Oil, mg/1	25	
Fluoride, mg/1		2800
Ammonia, mg/1		650

(a) Increase over background concentration for all parameters except for pH.

(b) Controlled temperature required for the process; therefore, absolute temperature given.

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TABLE 13

CONCENTRATIONS OF RAW WASTE WATER PARAMETERS
HAND PRESSED AND BLOWN GLASS MANUFACTURING

	TYPICAL RAW WASTE WATER CONCENTRATION (a)					
	Crack-Off and Polishing	Grinding and Polishing	Machine Cutting	Alkali Washer	Acid Polishing	Acid Etching
Temperature C	2.8	2.8	1.6	57	46	33
pH	3.2		10.0	11.2	2.2	4.0
Suspended Solids, mg/l	36	4350	2580	17	220	8
Fluoride, mg/l	194				1980	462
Lead, mg/l	.96	.43	100		31	7.9

(a) Representative of observed hand pressed and blown glass manufacturing waste water. Increase over background concentration for all parameters except for pH.

TABLE 14

WATER EFFLUENT TREATMENT COSTS
GLASS CONTAINER MANUFACTURING

Alternative Treatment or Control	1977 A	1983 ($1000) B	1985 C
Investment	0	285.	312.
Annual Costs:			
Capital Costs	0	22.8	25.
Depreciation	0	14.3	15.7
Operating and Maintenance Costs (excluding energy and power costs)	0	17.2	23.
Energy and Power Costs	0	1.8	3.2
Total Annual Cost	0	56.1	66.9

Effluent Quality:

Effluent Constituents	Raw Waste Load	Resulting Effluent Levels		
Flow (l/metric ton)	2920	2920	77	77
Oil (g/metric ton)	30	30	2	0.4
Suspended Solids (g/metric ton)	70	70	2	0.4
Flow (l/sec)	15.3	15.3	.41	.41
Oil (mg/l)	10	10	25	5
Suspended Solids (mg/l)	24	24	25	5

TABLE 15

WATER EFFLUENT TREATMENT COSTS
MACHINE PRESSED AND BLOWN GLASS MANUFACTURING

Alternative Treatment or Control Technologies:	A	($1000) B	C
Investment	0	187.	214.
Annual Costs:			
Capital Costs	0	15.	17.2
Depreciation	0	9.4	10.8
Operating and Maintenance Costs (excluding energy and power costs)	0	16.2	22.6
Energy and Power Costs	0	1.2	2.6
Total Annual Cost	0	41.8	53.2

Effluent Quality:

Effluent Constituents	Raw Waste Load	Resulting Effluent Levels		
Flow (l/metric ton)	5630	5630	370	370
Oil (g/metric ton)	56	56	9	1.8
Suspended Solids (g/metric ton)	140	140	9	1.8
Flow (l/sec)	5.9	5.9	.39	.39
Oil (mg/l)	10	10	25	5
Suspended Solids (mg/l)	25	25	25	5

TABLE 16

WATER EFFLUENT TREATMENT COSTS
GLASS TUBING MANUFACTURING

Alternative Treatment or Control Technologies:	($1000) A	 B
Investment	0	97.6
Annual Costs:		
Capital Costs	0	7.8
Depreciation	0	4.9
Operating and Maintenance Costs (excluding energy and power costs)	0	9.7
Energy and Power Costs	0	0.3
Total Annual Cost	0	22.7

Effluent Quality:

Effluent Constituents	Raw Waste Load	Resulting Effluent Levels	
Flow (l/metric ton)	8340	8340	21
Oil (g/metric ton)	80	80	0.1
Suspended Solids (g/metric ton)	230	230	0.1
Flow (l/sec)	8.8	8.8	.022
Oil (mg/l)	10	10	5
Suspended Solids (mg/l)	27	27	5

TABLE 17

WATER EFFLUENT TREATMENT COSTS
TELEVISION PICTURE TUBE ENVELOPE MANUFACTURING

Alternative Treatment or Control Technologies:	A	($1000) B	C
Investment	0	67.0	231.
Annual Costs:			
Capital Costs	0	5.4	18.5
Depreciation	0	3.4	11.6
Operating and Maintenance Costs (excluding energy and power costs)	0	8.7	37
Energy and Power Costs	0	0.9	1
Total Annual Cost	0	15.4	68.1

Effluent Quality:

Effluent Constituents	Raw Waste Load	Resulting Effluent Levels		
Flow (l/metric ton)	12,500	12,500	12,500	12,500
Oil (g/metric ton)	130	130	130	130
Suspended Solids (g/metric ton)	4200	130	60	60
Fluoride (g/metric ton)	1800	65	45	9
Lead (g/metric ton)	390	4.5	0.45	0.45
Flow (l/sec)	33	33	33	33
Oil (mg/l)	10	10	10	10
Suspended Solids (mg/l)	335	10	5	5
Fluoride (mg/l)	143	5.2	3.5	71
Lead (mg/l)	30	35	.035	.035

TABLE 18

WATER EFFLUENT TREATMENT COSTS
INCANDESCENT LAMP ENVELOPE MANUFACTURING

Alternative Treatment or Control Technologies:	A	B	C	D
			($1000)	
Investment	0	470	624	697
Annual Costs:				
Capital Costs	0	37.6	49.9	55.7
Depreciation	0	23.5	31.2	34.8
Operating and Maintenance Costs (excluding energy and power costs)	0	63	81.6	90.9
Energy and Power Costs	0	116	116.5	118.4
Total Annual Costs	0	240	279	300

Effluent Qualtiy:

Effluent Constituents	Raw Waste Load	Resulting Effluent Levels			
Flow (l/metric ton)	7420	7420	7420	7420	7420
Oil (g/metric ton)	120	120	120	120	22
Suspended Solids (g/metric ton)	400	190	190	130	37
Fluoride (g/metric ton)	8300	68	68	7	7
Ammonia (g/metric ton)	1950	1940	100	100	100
Flow (l/sec)	13.7	13.7	13.7	13.7	13.7
Oil (mg/l)	15	15	15	15	3
Suspended Solids (mg/l)	54	25	25	17	5
Fluoride (mg/l)	1110	8	8	1	1
Ammonia (mg/l)	260	260	12	12	12

TABLE 19

WATER EFFLUENT TREATMENT COSTS
HAND PRESSED AND BLOWN GLASS MANUFACTURING

Alternative Treatment or Control Technologies:	($1000)			
	A	B	C	D
Investment	0	284	325	371
Annual Costs:				
Capital Costs	0	22.7	26.0	29.7
Depreciation	0	14.2	16.2	18.5
Operating and Maintenance Costs (excluding energy and power costs)	0	15.6	18.6	21.4
Energy and Power Costs	0	2.6	2.7	2.7
Total Annual Cost	0	55.1	63.5	72.3

Effluent Quality:

Effluent Constituents	Raw Waste Load	Resulting Effluent Levels			
Flow (l/sec)	0.61	0.61	0.61	0.61	0.61
pH (mg/l)	2	2	9	9	9
Suspended Solids (mg/l)	544	544	25	5	5
Fluoride (mg/l)	422	422	15	10	2
Lead (mg/l)	11.4	11.4	1	0.1	0.1

BPT

TABLE 2[illegible]
RECOMMENDED MONTHLY AVERAGE EFFLUENT LIMITATIONS USING BEST PRACTICABLE CONTROL TECHNOLOGY CURRENTLY AVAILABLE

	Suspended Solids	Oil	Fluoride	Lead	Ammonia	pH
Glass Containers						
g/metric ton	70	30	-	-	-	6-9
(lb/short ton)	0.14	0.06	-	-	-	
Machine Pressed and Blown Glass						
g/metric ton	140	56	-	-	-	6-9
(lb/short ton)	0.28	0.11	-	-	-	
Glass Tubing						
g/metric ton	230	85	-	-	-	6-9
(lb/short ton)	0.46	0.17	-	-	-	
Television Picture Tube Envelope						
g/metric ton	130	130	65	4.5	-	6-9
(lb/short ton)	0.25	0.25	0.13	0.009	-	
Incandescent Lamp Envelopes						
Forming						
g/metric ton	110	110	-	-	-	6-9
(lb/short ton)	0.23	0.23	-	-	-	
Frosting						
g/metric ton frosted	85	-	68	-	100	6-9
(lb/short ton frosted)	0.17	-	0.14	-	0.20	
Hand Pressed and Blown						
mg/l	25	-	15	1.0	-	6-9

NOTICE: THESE ARE TENTATIVE RECOMMENDATIONS BASED UPON INFORMATION IN THIS REPORT AND ARE SUBJECT TO CHANGE BASED UPON COMMENTS RECEIVED AND FURTHER INTERNAL REVIEW BY EPA.

BAT

TABLE 27

RECOMMENDED MONTHLY AVERAGE EFFLUENT LIMITATIONS USING BEST AVAILABLE TECHNOLOGY ECONOMICALLY ACHIEVABLE

	Suspended Solids	Oil	Fluoride	Lead	Ammonia	pH
Glass Containers						
g/metric ton	0.4	0.4	-	-	-	6-9
(lb/short ton)	0.0008	0.0008	-	-	-	
Machine Pressed and Blown Glass						
g/metric ton	1.8	1.8	-	-	-	6-9
(lb/short ton)	0.0036	0.0036	-	-	-	
Glass Tubing						
g/metric ton	0.1	0.1	-	-	-	6-9
(lb/short ton)	0.0002	0.0002	-	-	-	
Television Picture Tube Envelope						
g/metric ton	60	130	9	0.45	-	6-9
(lb/short ton)	0.12	0.25	0.018	0.0009	-	
Incandescent Lamp Envelopes						
Forming						
g/metric ton	23	23	-	-	-	6-9
(lb/short ton)	0.045	0.045	-	-	-	
Frosting						
g/metric ton frosted	17	-	7	-	100	6-9
(lb/short ton frosted)	0.034	-	0.014	-	0.21	
Hand Pressed and Blown						
mg/l	5	-	2	0.1	-	

NOTICE: THESE ARE TENTATIVE RECOMMENDATIONS BASED UPON INFORMATION IN THIS REPORT AND ARE SUBJECT TO CHANGE BASED UPON COMMENTS RECEIVED AND FURTHER INTERNAL REVIEW BY EPA.

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CONVERSION TABLE

Multiply (English Units)	By	To Obtain (Metric Units)
ENGLISH UNIT	CONVERSION	METRIC UNIT
British Thermal Unit	0.252	kilogram-calories
BTU/short ton	0.278	kilogram-calories/metric ton
feet	0.3048	meters
gallons	3.785	liters
gallons/minute	0.0631	liters/second
gallons/short ton	4.17	liters/metric ton
horsepower	10.70	kilogram-calories/minute
inches	2.54	centimeters
pounds	0.454	kilograms
pounds/short ton	0.5	kilograms/metric ton
million gallons/day	3785	cubic meters/day
square feet	0.0929	square meters
tons (short)	0.907	metric tons (1000 kilograms)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December 20, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the Promulgated Effluent Limitation Guidelines for the Glass Industry, Subcategories H, I, J, K, L and M.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

GLASS INDUSTRY
SUBCATECORIES H,I,J,K,L & M

General Information:

The RMP for the proposed guideline was reviewed and reported on by ES&WQIAC member Don E. Bloodgood on about July 29, 1974.

Subcategories:

There have been no changes in the subcategorization of this portion of the industry. The subcategories in the document being reviewed at this time are:

Subcategory H - Glass Container Manufacturing
Subcategory I - Machine Pressed and Blown Glass
Subcategory J - Glass Tubing (Danner)
Subcategory K - Television Picture Tub Envelope
Subcategory L - Incadescent Lamp Envelope
Subcategory M - Hand Pressed and Glown Glass

Effluent Limitations:

The limitations for the Proposed Guidelines, the Draft Promulgated Guidelines and the Proposed Guidelines for New Source Pretreatment are shown in Table I of this review.

It is noted that the Draft Promulgated Guidelines and the Proposed Guidelines for Pretreatment of New Sources are not presented for Subcategory I.

Economic Impact:

The Economic Impact Statement for BPT says that the initial industry investment, and the annual operating costs are minimal.

There are no threatened plants reported.

Comments and Recommendations:

1. It is nearly impossible to evaluate the degrees of treatment being required without an indication of the flows per unit of production.

2. It was noted that the limiting values for oil and TSS for BAT and New Sources of the final limitations were doubled over those for the Proposed Guidelines.

3. The wording of "no limitations" for Pretreatment for New Sources, TSS and pH is questioned because it is misleading.

4. The removal of the oil limitation for Category J was noted.

5. The suspended solids limitations for BPT, BAT and New Sources for Subcategory K were in some cases more than doubled for the Draft Promulgated Guidelines.

6. Oil limitations of less than 10 mg/l are questioned because of the difficulties with the analytical procedures and sampling.

7. The need of a fluoride limitation of 2.5 mg/l for wastes discharged to municipal sewers is questioned. (See Subcategory K)

8. The need for the production of an effluent with a suspended solids concentration of 5 mg/l is questioned. (See Subcategory L)

9. The limitations in Subcategory L, BAT and New Sources for TSS and Oil were increased by a factor of two or more in the Draft of Promulgated Guidelines.

10. The Pretreatment Limitation for New Sources of 13 mg/l of Oil for Subcategory L is not reasonable.

11. A Pretreatment Limitation for New Sources of 6 mg/l of fluoride is unreasonable for Subcategory L.

12. The increase of the ammonia limitation in Subcategory L from 11 to 13 mg/l in BAT was noted.

13. Why is a fluoride limitation of 13 mg/l for Pretreatment of New Sources (Subcategory M) permitted when only 6 mg/l is allowed in Subcategory L?

14. The reason for a "no limitation" for lead for Subcategory M, Pretreatment Limitations for New Sources is questioned.

15. The "action memorandum" for Asbestos Manufacturing Point Source Category" was included in the Rule-Making Package as Tab G.

cc: Director, Effluent Guidelines Division

TABLE I

GLASS MANUFACTURING

	BPT				BAT				New Sources				New Sou pretreat	
	Proposed		Final		Proposed		Final		Proposed		Final			
	max day	30 day avg	max day	30 day avg	max day	30 day avg	max day	30 day avg	max day	30 day avg	max day	30 day avg	max day	30
subcategory H	#s/1000#s				#s/1000#s				#s/1000#s					
Oil	.06	.03	.06	.03	.0008	.0004	.0016	.0008	.0008	.0004	.0016	.0008	.06	
TSS	.14	.07	.14	.07	.0008	.0004	.0016	.0008	.0008	.0004	.0016	.0008	no limit	
pH	6.0-9.0		6.0 to 9.0		6.0-9.0		6.0 to 9.0		6.0-9.0		6.0 to 9.0		no limit	
subcategory I														
Oil	.112	.056			.0036	.0018			.0036	.0018				
TSS	.28	.14			.0036	.0018			.0036	.0018				
pH	6.0 to 9.0				6.0 to 9.0				6.0 to 9.0					
subcategory J														
Oil	.17	.085	—	—	.0002	.0001			.0002	.0001				
TSS	.46	.23	.46	.23	.0002	.0001	.0004	.0002	.0002	.0001	.0004	.0002	no limita	
pH	6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		no limita	
subcategory K														
Oil	.26	.13	.26	.13	.26	.13	.26	.13	.26	.13	.26	.13	.26	.1
TSS	.26	.13	.30	.15	.12	.06	.26	.13	.12	.06	.26	.13	no limita	
Fluoride	.13	.065	.14	.07	.018	.009	.12	.06	.018	.009	.12	.06	c.12	0.
Lead	.009	.0045	.009	.0045	.0007	.00045	.0009	.00045	.0009	.00045	.0009	.00045	no limita	
pH	6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		no limita	
subcategory L														
Oil	.23	.115	.23	.115	.045	.023	.09	.095	.045	.023	.09	.085	.23	.1
TSS	.23	.115	.23	.115	.045	.023	.09	.045	.045	.023	.09	.045	no limitati	
pH	6.0 to 9.0		6.0 to 9.0		6.0-9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		no limitation	
Fluoride	.14	.07	.23	.15	.014	.007	.104	.052	.014	.007	.104	.052	.104	.05
Ammonia	.2	.1	no limitation		.2	.1	.24	.12	0.2	0.1	.24	.12	no limitation	
TSS	.17	.09	.46	.23	.034	.017	.08	.04	.034	.017	.08	.04	no limitation	
pH	6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		no limitation	
subcategory M	mg/l				mg/l		mg/l		mg/l		mg/l		mg/l	
(a) Lead	2	1	no limitation		.2	.1	.2	.1	.2	.1	0.20	0.1	no limitation	
Fluoride	30	15	no limitation		4.0	2.0	26.0	13.0	4.0	2.0	26.0	13.0	2.0	3.0
TSS	50	25	no limitation		10.0	5.0	20.0	10.0	10.0	5.0	20.0	10.0	no limitation	
pH	6.0 to 9.0		no limitation		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		no limitation	
(b) Fluoride	30	15	no limitation		4.0	2.0	26.0	13.0	4.0	2.0	26.0	13.0	26.0	13.0
TSS	50	25	no limitation		10.0	5.0	20.0	10.0	10.0	5.0	20.0	10.0	no limitation	
pH	6.0 to 9.0		no limitation		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		no limitation	
													no limitation	
(c) TSS	50	25	no limitation		10.0	5.0	20.0	10.0	10.0	5.0	20.0	10.0	no limitation	
pH	6.0 to 9.0		no limitation		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		6.0 to 9.0		no limitation	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

August 21, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-making Package for Pressed and Blown Glass, August, 1974 (Additional Material)

FROM : Effluent Standards and Water Quality Information Advisory Committee (Don Bloodgood)

TO : ES&WQIAC Office

Pressed and Blown Glass Segment of the Glass Manufacturing Industry

There are 30 firms and 140 plants presently in operation manufacturing glass containers with the largest number in the Northeastern United States. There are over 70,000 employees and a production of 55,500 tons per day of pulled glass.

There are about 70 machine pressed and blown glass plants in the U.S. that have an average production of about 100 tons per day per plant.

There are about 30 plants manufacturing tubing and they pull about 100 tons of glass per day per plant.

There are approximately 10 television picture tube plants that pull about 229 tons of lgass per day per plant.

Incandescent lamp envelopes are produced in 18 plants in the U.S.. The average glass pulled is 212 tons per day per plant.

There are 50 handmade glassware plants in the U.S. that average about 4.0 tons per day of pulled glass.

Subcategories

J 1. Glass Container Manufacturing
I 2. Machine Pressed and Blown Glass Mfg.
J 3. Tubing Manufacturing
K 4. Television Picture Tube Envelope Mfg.
L 5. Incandescent Lamp Glass Mfg. (a) Forming (b) Frosting
M 6. Hand Pressed and Blown Glass Mfg.

Flows

1.	Glass Containers		700 gal/ton
2.	Machine Pressed and Blown	530 to 600 gal/ton	1360 gal/ton
3.	Tubing		2000 gal/ton
4.	Television Tubes		3000 gal/ton
5.	Incandescent		
	Forming		1080 gal/ton
	Frosting	1300-	2000 gal/ton
6.	Hand Pressed and Blown	40 gal/day-	10,000 gal/day

Major Parameters of Pollutional Significance

1. Fluoride
2. Ammonia
3. Lead
4. Oil
5. pH
6. Suspended Solids

Treatment Technology

Glass Container Mfg.

Alternative A

1. Sedimentation
2. Oil Removal

Alternative B

1. Recycle of Water
2. Dissolved Air Flotation of Blowdown

Alternative C

1. Diatomaceous Earth Filtration

Machine Pressed and Blown Glass Mfg.

Alternative A

1. Sedimentation
2. Oil Removal

Alternative B

1. Recycle of Water
2. Dissolved Air Flotation of Blowdown

Alternative C

1. Diatomaceous Earth Filtration

Television Picture Tube Envelope Mfg.

Alternative A

1. Lime precipitation of abrasive and acid polishing wastewaters
2. Coagulation and sedimentation
3. pH adjustment with sulfurice acid
4. Landfill disposal of solids

Alternative B

1. Sand Filtration

Alternative C

1. Activated Alumina Filtration

Incandescent Lamp Envelope Mfg.

Alternative A

1. Belt type oil skimmers on cullet wastewaters
2. Lime precipitation of fluoride in frosting wastewaters
3. Suspended Solids removal
4. Ammonia discharge is eliminated by separate disposal of concentrated etching solutions
5. Permanent storage of frosting solutions

Alternative B

1. Ammonia removal by steam stripping

Alternative C

1. Sand and activated Alumina Filtration

Hand Pressed and Blown Glass Mfg. - has at least six wastewater producing processes, they are: crack-off and polishing, grinding and polishing, machine cutting, alkali washing, acid polishing and etching.

Alternative A

1. Lime precipitation for fluoride and lead removal
2. Trenches for solids collection
3. Solid Waste Disposal

Alternative B

1. Batch precipitation and recarbonation

Alternative C

1. Sand Filtration

Alternative D

1. Activated Alumina Filtration

Data From

Plant Types	No. of Plants Listed	No. of Plants Visited	No. Plants Estimated
Glass Containers	82	3	140
Machine Pressed & Blown	13	2	70
Tubing	7	1	30
T.V. Picture Tube Envelope	5	2	10
Incandescent Lamp	5	1	18
Hand Pressed & Blown Glass	10	4	50

Raw Waste Loads-BPT-BAT- New Source Limitations and Percent Removals

(See modified Tables 5,6,7,8,9 and 10)

Comments on Guidelines

1. The requirement for an oil limitation of 3 mg/l for BATC(Glass Containers) cannot be monitored with present-day analytical procedures.

2. The requirement for an oil limitation of 5 mg/l for BAT (Machine Pressed or Blown Glass) cannot be monitored with present day analytical procedures.

3. Lack of uniformity in limitations for subcategory constituents will cause problems from the standpoint of equitable permits. Illustrated by the oil and suspended solids requirements shown as follows:

Category	BPT mg/l Oil	BPT mg/l Sus/Solids	BAT mg/l Oil	BAT mg/l Sus/Solids
Glass Containers	10	24	3	3
Machine Pressed and Blown	10	25	5	5
Glass Tubing	10	28	5	5
T.V. Picture Tubes	10	10	10	5
Incandescent Lamp				
Cullet Quenching	25	25	5	5
Frosting	--	25	--	5
Hand Pressed & Blown	--	25	--	5

4. Note the lack of uniformity for the fluorine and lead limitations

	BPT mg/l		BAT mg/l	
Category	Fluorine	Lead	Fluorine	Lead
Incandescent Lamp Frosting	20	--	2	--
Hand Pressed & Blown	15	1.0	2	.01
T.V. Tube	5	.35	0.7	.04

TABLE 5

RAW WASTE WATER (a)
GLASS CONTAINER MANUFACTURING

						BPT	mg/l	BAT
[illegible]	2920	l/metric ton	700	gal/short ton				
[illegible]	60		11F	35gal blowdown				
[illegible]	7.5							
[illegible]	0.0145	kg/metric ton	0.029	lb/short ton	5 mg/l	—		[illegible]
[illegible]	0.145	kg/metric ton	0.29	lb/short ton	50 mg/l	—		[illegible]
[illegible]	0.07	kg/metric ton	0.14	lb/short ton	24 mg/l	.14	24	.0008
[illegible]	0.03	kg/metric ton	0.06	lb/short ton	10 mg/l	0.06	10	[illegible]

(a) Representative of typical glass container manufacturing waste water. Absolute value given for pH, increase over plant influent level given for other parameters.

assumed ~ 5% blowdown

% Reduction	BPT	BAT
Susp. Solids	0	99.4
Oil	0	98.7

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TABLE 6

RAW WASTE WATER (a)
MACHINE PRESSED AND BLOWN GLASS MANUFACTURING

						BPT	mg/l	BAT	mg/l
Flow	5630	l/metric ton	1350	gal/short ton (88 gal/short ton of blow-down)					
Temperature	10C		18F						
pH	7.8					6-9		6-9	
BOD	0.028	kg/metric ton	0.056	lb/short ton	5 mg/l	—		—	
COD	0.28	kg/metric ton	0.56	lb/short ton	50 mg/l	—		—	
Suspended Solids	0.14	kg/metric ton	0.28	lb/short ton	25 mg/l	0.28	25	.0036	5
Oil	0.056	kg/metric ton	0.11	lb/short ton	10 mg/l	0.11	10	.0036	5

(a) Representative of typical machine pressed and blown glass manufacturing waste water. Absolute value given for pH, increase over plant influent level given for other parameters.

% Removal	BPT	BAT
Susp. Sol.	0	98.7
Oil	0	96.7

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TABLE 7

RAW WASTE WATER (a)
GLASS TUBING MANUFACTURING

						BPT		BAT	
Flow	8340	l/metric ton	2000	gal/short ton (5200/short ton [illegible])					
Temperature	4.5C		8F						
pH	7.9						mg/l	6-9	
COD	0.08	kg/metric ton	0.16	lb/short ton	10 mg/l	–		—	
Suspended Solids	0.225	kg/metric ton	0.45	lb/short ton	27 mg/l	.46	28	.0002	.5
Oil	0.085	kg/metric ton	0.17	lb/short ton	10 mg/l	.17	10	.0002	.5

(a) Representative of typical glass tubing manufacturing waste waters. Absolute value given for pH, increase over plant influent level given for other parameters.

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TABLE 8

RAW WASTE WATER (a)
TV PICTURE TUBE ENVELOPE MANUFACTURING

				BPT	mg/l	BAT	mg/l
Flow	12,500 l/metric ton	3000 gal/short ton					
Temperature (b)	14C	25F					
pH	6-9			6-9		6-9	
COD	0.435 kg/metric ton	0.87 lb/short ton	35 mg/l	—			
Suspended Solids	4.2 kg/metric ton	8.4 lb/short ton	335 mg/l	.25	10	.12	5
Dissolved Solids	3.25 kg/metric ton	6.5 lb/short ton	260 mg/l	—	—	—	—
Oil	0.125 kg/metric ton	0.25 lb/short ton	10 mg/l	.25	10	.25	10
Fluoride	1.8 kg/metric ton	3.6 lb/short ton	143 mg/l	.13	5	.018	.7
Lead	0.385 kg/metric ton	0.77 lb/short ton	30 mg/l	.009	.35	.0009	.04

(a) Represents typical TV picture tube envelope manufacturing process waste water prior to treatment. Absolute value given for pH; increase over plant influent level given for other parameters.

(b) Indication of approximate level only; insufficient data are available to define typical value.

% Reduction	BPT	BAT
Suspended Solids	97.0	98.5
[illegible]	0	0
Fluoride	99.5	99.5
Lead	[illegible]	99.9

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TABLE 9

RAW WASTE WATER (a)
INCANDESCENT LAMP GLASS MANUFACTURING

Cullet Quenching

						BPT	mg/l	BAT	mg/l
Flow	4500	1/metric ton	1080	gal/short ton					
Temperature	8C		14F						
pH	8.6					6-9		6-9	
COD	0.11	kg/metric ton	0.23	lb/short ton	25 mg/1	—		—	—
Suspended Solids	0.11	kg/metric ton	0.23	lb/short ton	25 mg/1	.23	[illegible]	[illegible]	5
Oil	0.11	kg/metric ton	0.23	lb/short ton	25 mg/1	.25	25	[illegible]	5

Frosting

							mg/l		
Flow	3420	1/metric ton	820	gal/short ton					
Temperature	38C		100F						
pH	3.0					6-9		6-9	
COD	0.085	kg/metric ton	0.17	lb/short ton	25 mg/1	—		—	
Suspended Solids	0.34	kg/metric ton	0.68	lb/short ton	100 mg/1	.17	25	.034	5
Fluoride	9.6	kg/metric ton	19.2	lb/short ton	2800 mg/1	.14	20	.014	2
Ammonia	2.2	kg/metric ton	4.4	lb/short ton	650 mg/1	.20	30	.21	31

(a) Representative of typical incandescent lamp glass manufacturing waste water. Absolute value given for pH and frosting temperature; increase over plant influent level given for other parameters.

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% Removal		BPT	BAT
Cullet Quenching	Susp. Solids	0	80
	Oil	0	80
Frosting	Susp. Solids	95.0	95
	Fluoride	99.3	99.4

TABLE 10

RAW WASTE WATER (a)
HAND PRESSED AND BLOWN GLASS MANUFACTURING

		Crack-Off and Polishing			
Flow	9920	l/metric ton	2380	gal/short ton	
Temperature	2.8C		5F		
pH	3				
Suspended Solids	0.35	kg/metric ton	0.71	lb/short ton	36 mg/l
Lead	0.010	kg/metric ton	0.019	lb/short ton	0.96 mg/l
Fluoride	1.93	kg/metric ton	3.85	lb/short ton	194 mg/l
		Grinding and Polishing			
Flow	3460	l/metric ton	830	gal/short ton	
Temperature	2.8C		5F		
Suspended Solids	15	kg/metric ton	30	lb/short ton	4350 mg/l
Lead	0.086	kg/metric ton	0.17	lb/short ton	25 mg/l
		Machine Cutting			
Flow	10,880	l/metric ton	2610	gal/short ton	
Temperature	1.6C		3F		
pH	10				
Suspended Solids	28	kg/metric ton	56	lb/short ton	2580 mg/l
Lead	1.1	kg/metric ton	2.2	lb/short ton	100 mg/l

	[illegible]	BAT
Susp. Sol	25 mg/l	5 mg/l
Fluoride	15 mg/l	2 mg/l
Lead	1 mg/l	.1 mg/l
pH 6-9		

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GLASS

2. Use

a. Process

b. Cooling

c. Plant Cleanup

d. Boiler

e. Sanitary

f. Other (define use)

3. Attach any available information on Raw Water Quality (See III B.)

4. Treatment Requirements

a. Volume Treated

b. Reason for Treatment

c. Describe Treatment System and Operation

d. Type and Quantity of Chemicals Used

e. Attach any available information on Treated Water Quality (See III B.)

III PROCESS WASTEWATER

A. Wastewater Sources

For each sewer that leaves company property, list manufacturing [illegible] that contribute wastewater. [illegible] the average, minimum and maximum flow [illegible] [illegible] day. [illegible] sanitary sewage may be neglected. Estimated flow rates [illegible] be indicated.

Source	Average	Minimum	Maximum
Total Sewer			

FIGURE 1 (CONTD.)

[illegible] stream or storm sewer [illegible]

[illegible] different during [illegible] operation?

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

J. Cost Information (related to water pollution control)

1. Treatment plant and/or equipment cost
2. Operating costs (power, fuel, maintenance, etc.)
3. Power costs
4. Estimated Equipment Life

IV COOLING WATER

A. Process steps requiring cooling water

B. Heat rejection requirements (BTU/hour)

C. Type of cooling system (once-through or recycle)

D. Water temperatures and flow rate

1. Input
2. Output
3. Flow rate

E. Cooling tower or spray pond (circle which)

1. Blowdown rate
2. Blowdown control method
3. Type and quantity of water treatment chemicals used
4. Attach any available analysis of blowdown water quality (see III B.)

F. Type and quantity of chemicals used for once-through cooling water treatment

V [illegible]

A. Capacity

B. Attach any available information on blowdown rate and quality (see III B.)

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FIGURE 1 (CONTD.)

```
PART A AND B PARAMETERS OF INTAKE WATER AND DISCHARGE.  BREAKDOWN BY PLANT

                 INF.      EFF.    CONC.
         GPD/    CONC.     AVE.    MAX                                                         LBS ADDED PER
  MGD    P-UNIT  MG/L      MG/L    MG/L     LB/DAY INCREASE   MG/L  INCREASE UNIT/DAY   PRODUCT UNIT
                                            AVE          MAX  AVE   MAX               AVE       MAX     . SAMPLE TYPE
ITEM NO.    550. OIL AND GREASE

NAME. PLANT A
                                          PRODUCTION= 450.   TONS/DAY.NONE.GC
 0.56    1244.44 1.        17.     18.        74.7264 79.3968 16.     17.      450.                         1 DATA POINTS
                                                                                      0.16605 0.17643COMP.24 HR. 6-18-72
NAME. PLANT B
                                          PRODUCTION= 525.   TONS/DAY.NONE.GC
 0.435   828.571 2.        6.      7.         14.5116 18.1395 4.      5.       525.                         1 DATA POINTS
                                                                                      0.02764 0.03455GRAB. 1-15-74
NAME. PLANT C
                                          PRODUCTION= 500.   TONS/DAY.NONE.GC
 0.17    340.    1.5       7.1     8.4        7.93968 9.78281 5.6     6.9      500.                         1 DATA POINTS
                                                                                      0.01587 0.01956COMP.24 HR. 1-25-74
NAME. PLANT D
                                          PRODUCTION= 600.   TONS/DAY.NONE.GC
 0.81    1350.   0.        11.     14.        74.3094 94.5756 11.     14.      600.                         1 DATA POINTS
                                                                                      0.12384 0.15762GRAB. 1-5-74

 1.975   3763.01 4.5       41.1    47.4      171.487 201.895 36.6     42.9     2075.  0.33342 0.38818
 0.49375 940.754 1.125     10.275  11.85     42.8717 50.4737 9.15     10.725   518.75 0.08335 0.09704              TOTAL
 0.26625 459.42  0.85391 4.97016 5.09477   36.6405 42.7503 5.46107  5.7011   62.5   0.07334 0.0814               AVER.
 0.81    1350.   2.        17.     18.       74.7264 94.5756 16.      17.    . 600.   0.16605 0.17643              SIGMA
 0.17    340.    0.        6.      7.        7.93968 9.78281 4.       5.       450.   0.01587 0.01956               MAX.
 0.49375 940.754 1.125     10.275  11.85     42.8717 50.4737 9.15     10.725   518.75 0.08335 0.09704               MIN.
                                                                                                               WT.AV.
```

FIGURE 2

SAMPLE COMPUTER FORMAT

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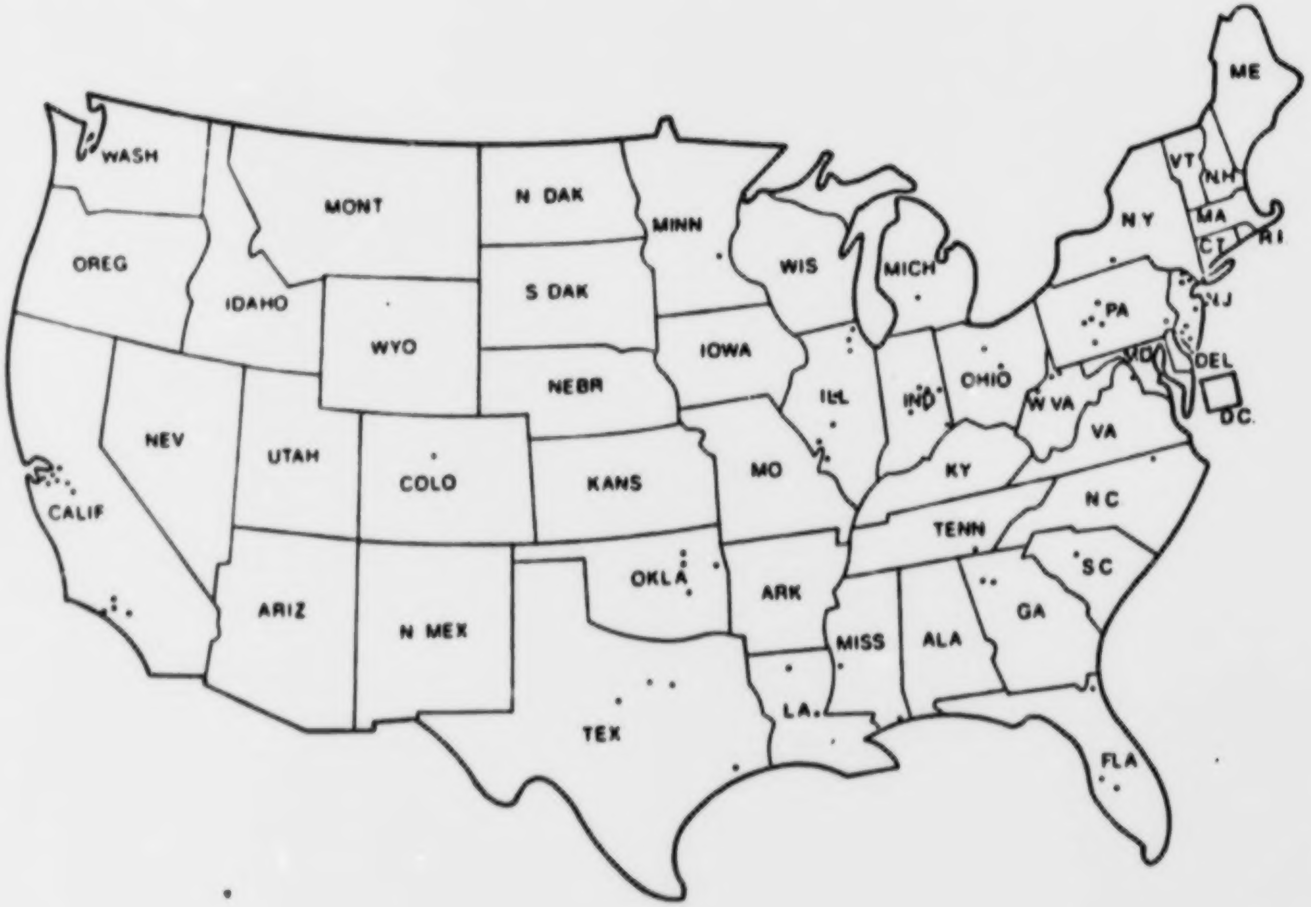

FIGURE 3

LOCATION OF PARTICIPATING GLASS CONTAINER MANUFACTURING PLANTS

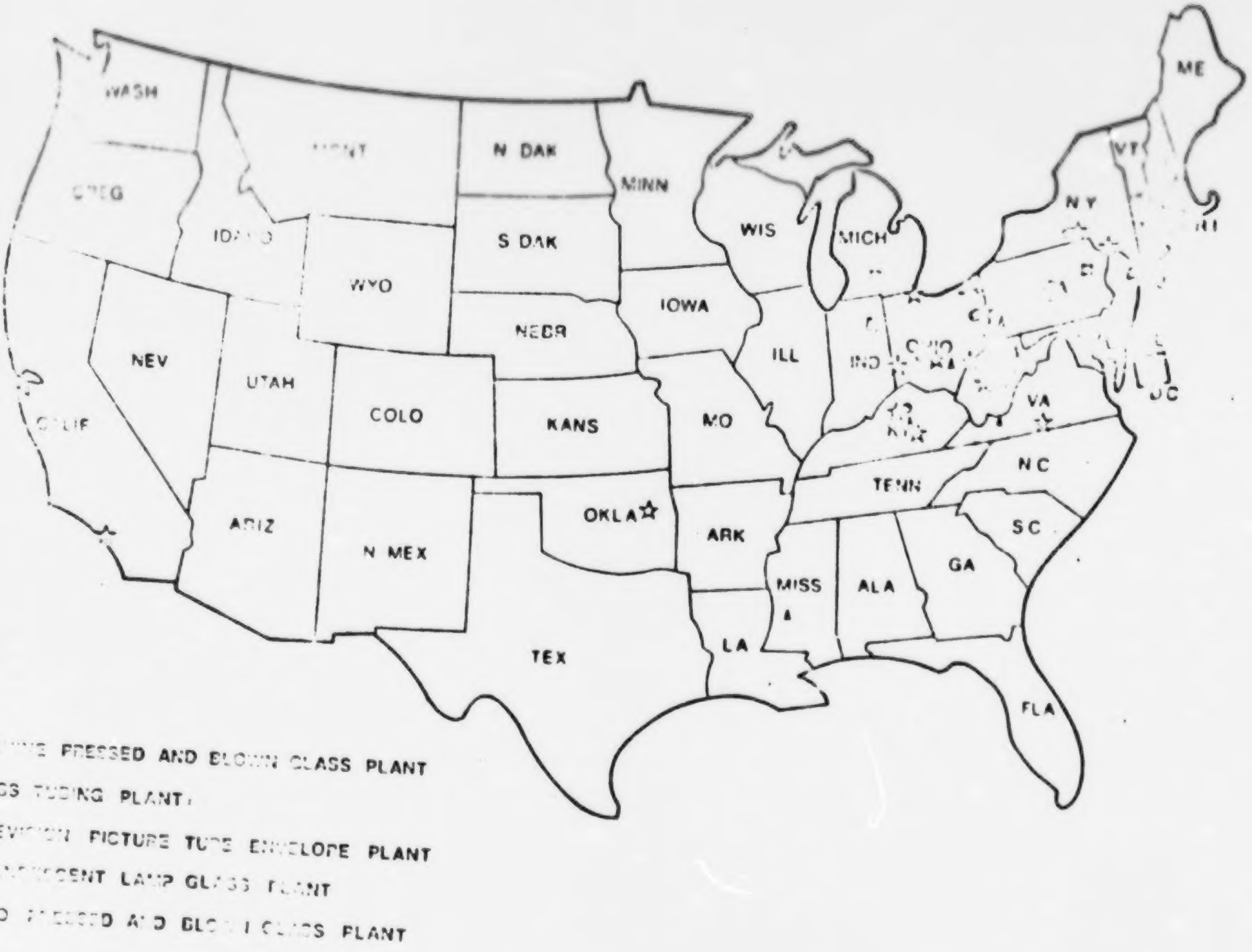

FIGURE 4

LOCATION OF [illegible] MAKING PRESSED AND BLOWN GLASS MANUFACTURING PLANTS

DRAFT

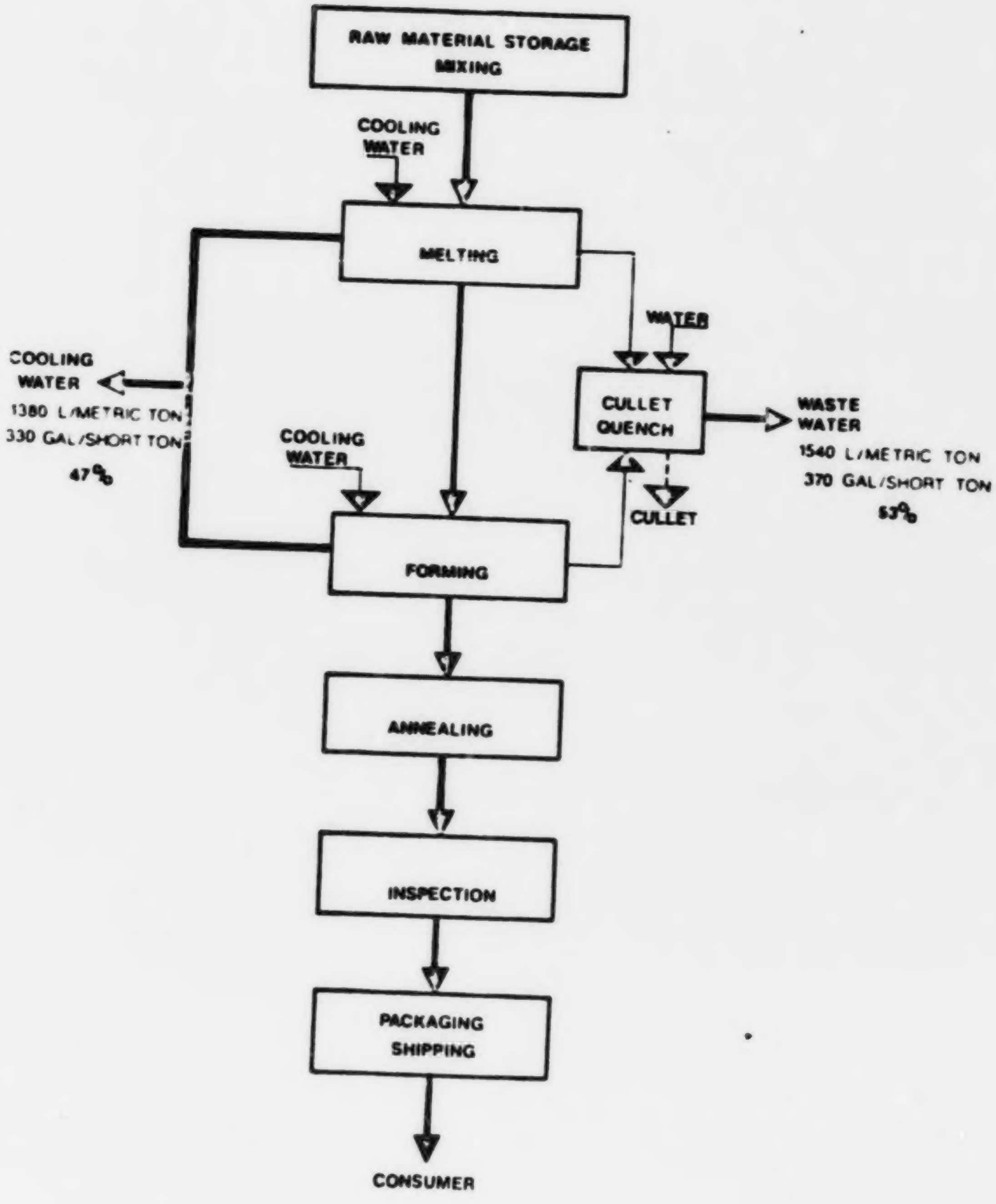

FIGURE 5

GLASS CONTAINER MANUFACTURING

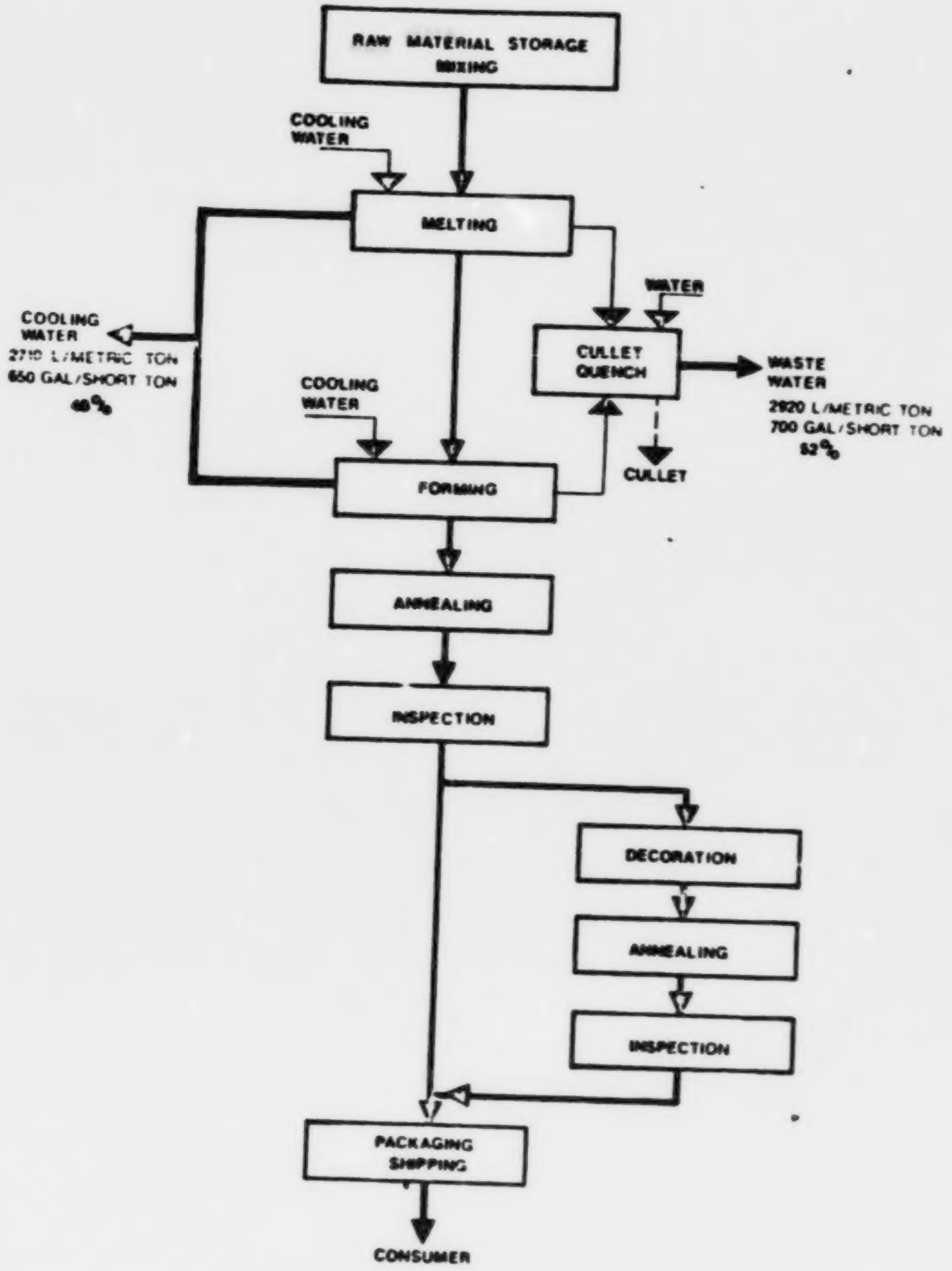

FIGURE 6

MACHINE PRESSED AND BLOWN GLASS MANUFACTURING

DRAFT

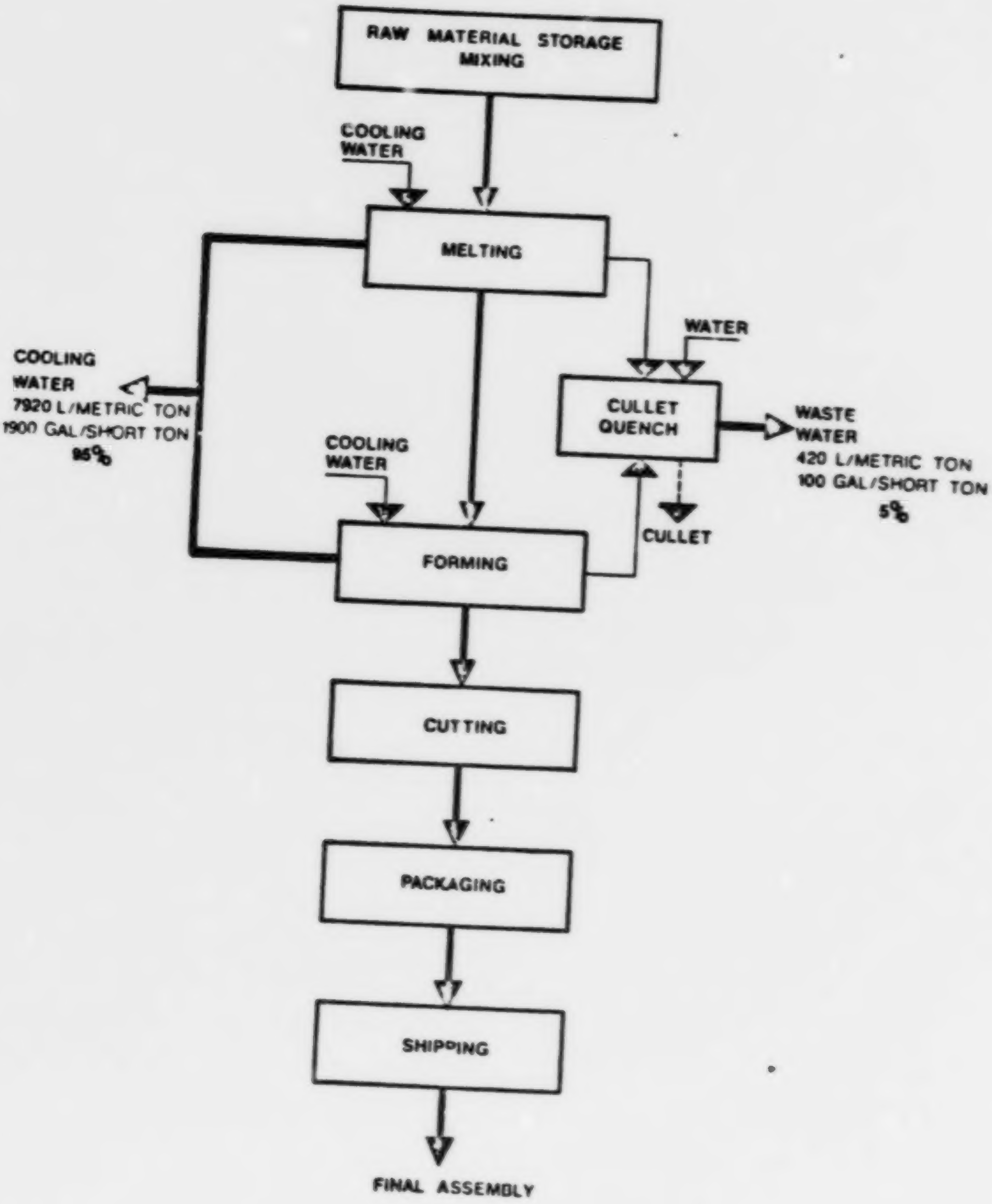

FIGURE 7

GLASS TUBING MANUFACTURING

DRAFT

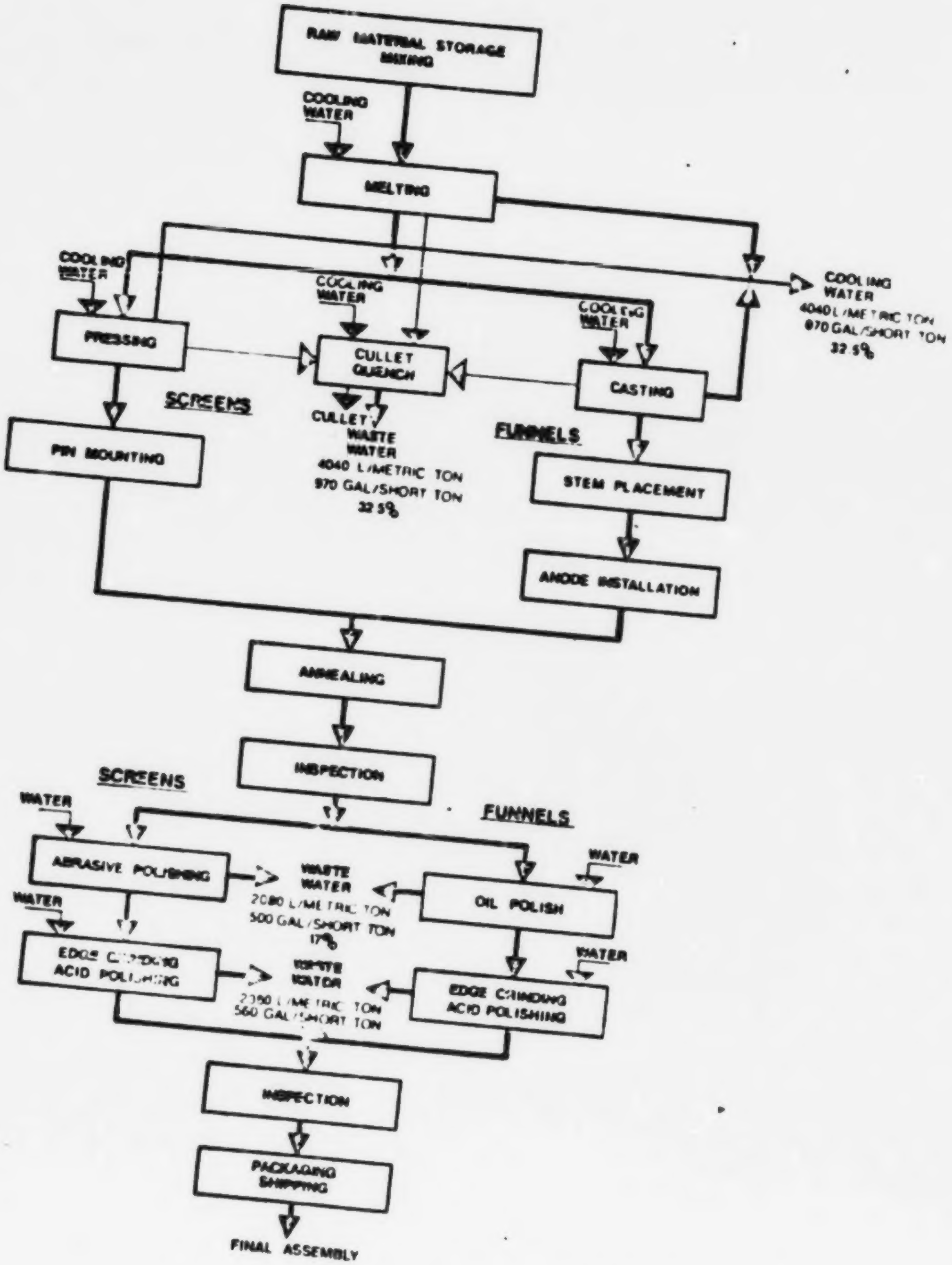

FIGURE 8

TELEVISION PICTURE TUBE ENVELOPE MANUFACTURING

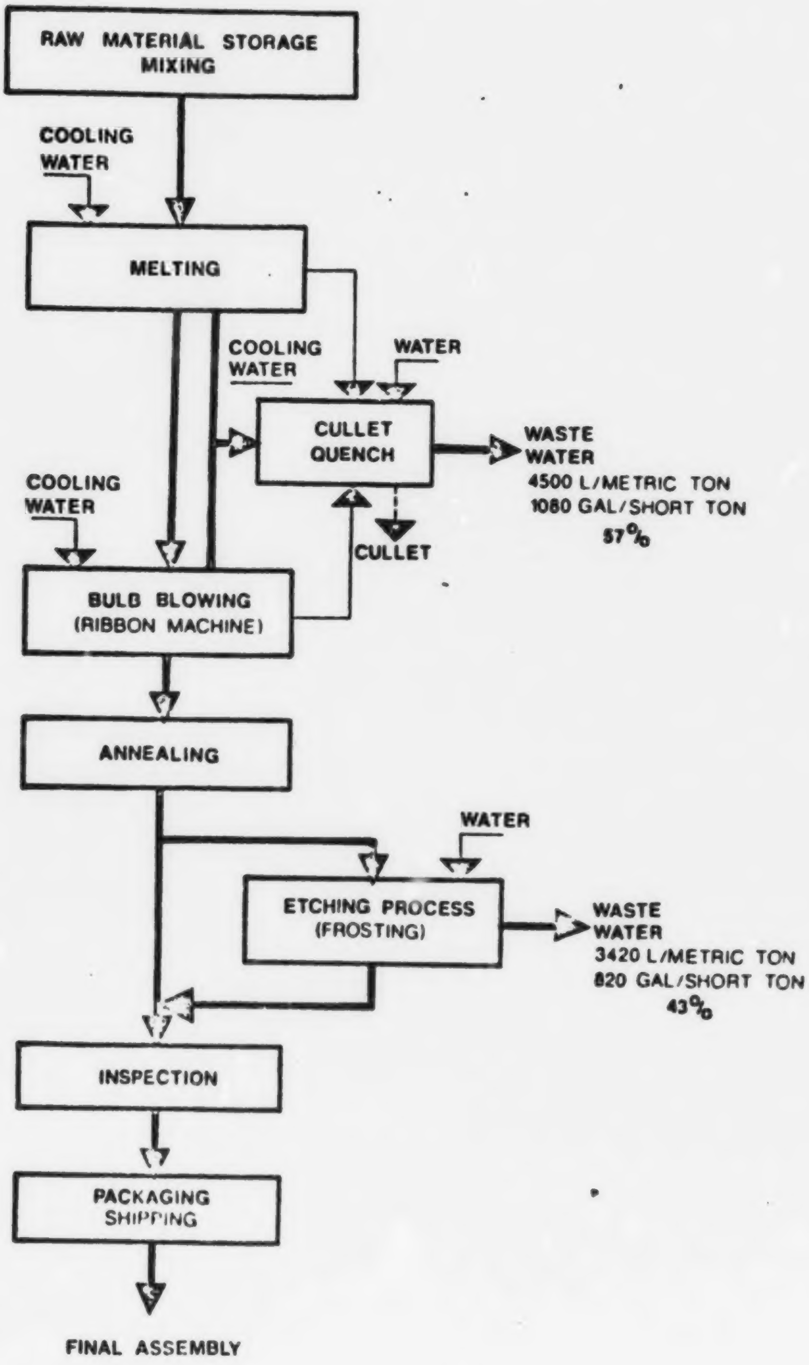

FIGURE 9

INCANDESCENT LAMP GLASS MANUFACTURING

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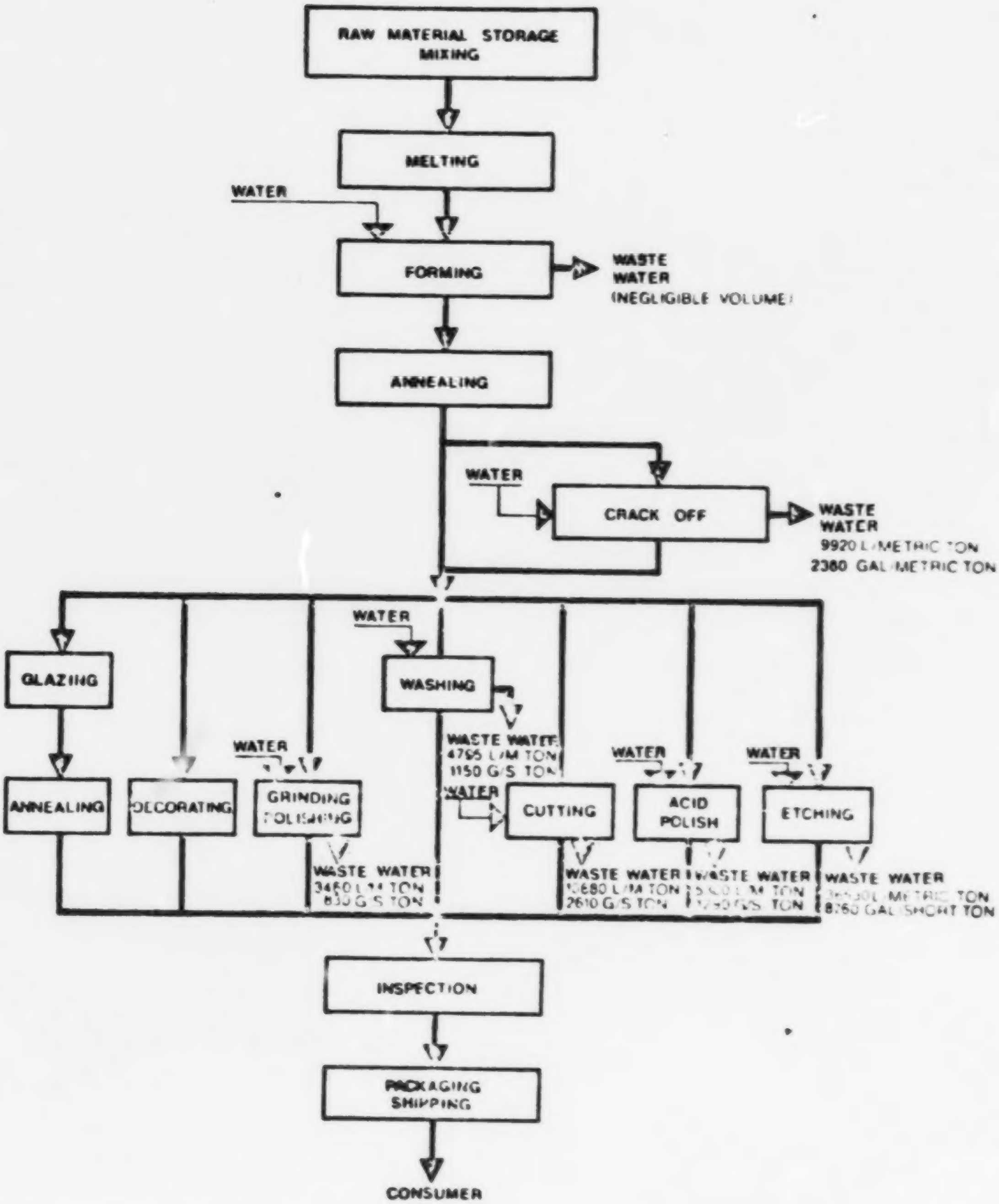

FIGURE 10

HAND PRESSED AND BLOWN GLASS MANUFACTURING

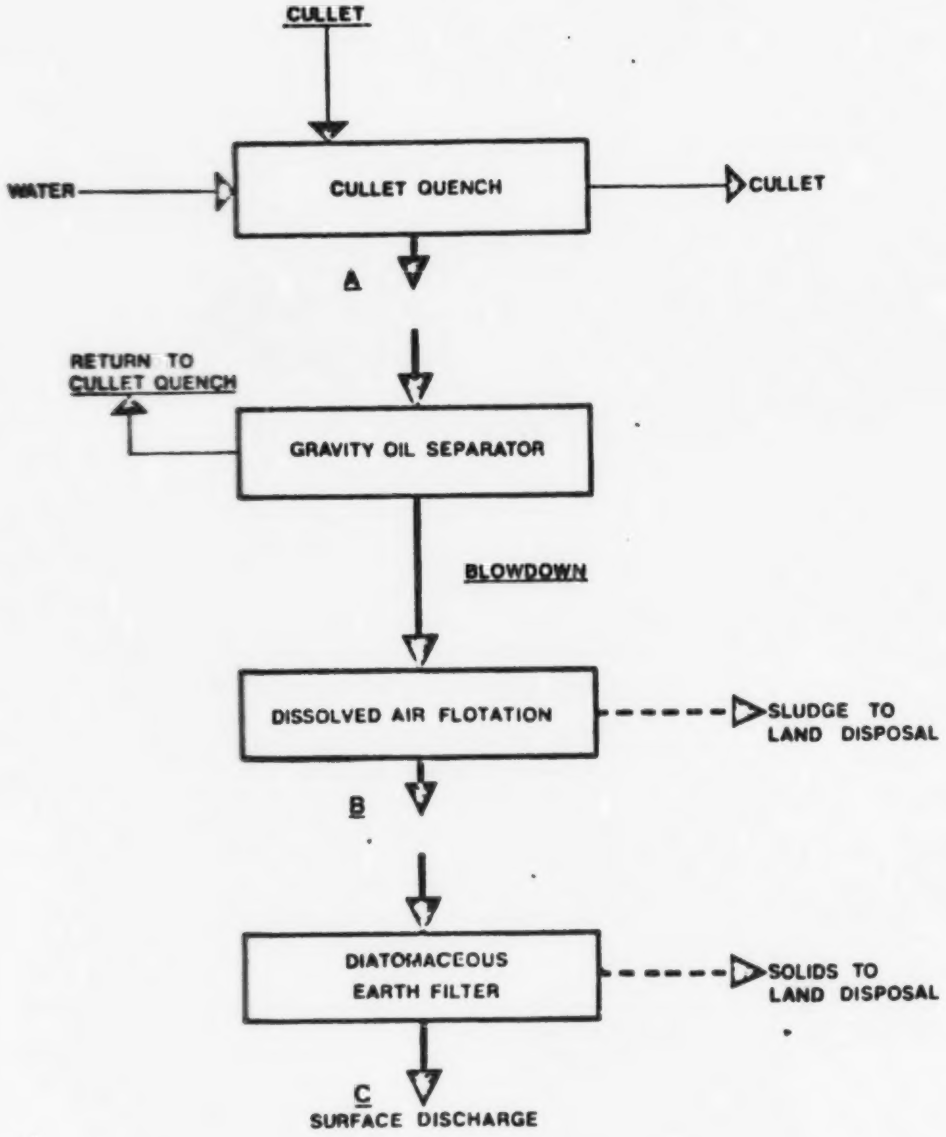

FIGURE 11

WASTE WATER TREATMENT

GLASS CONTAINER MANUFACTURING

MACHINE PRESSED AND BLOWN GLASS MANUFACTURING

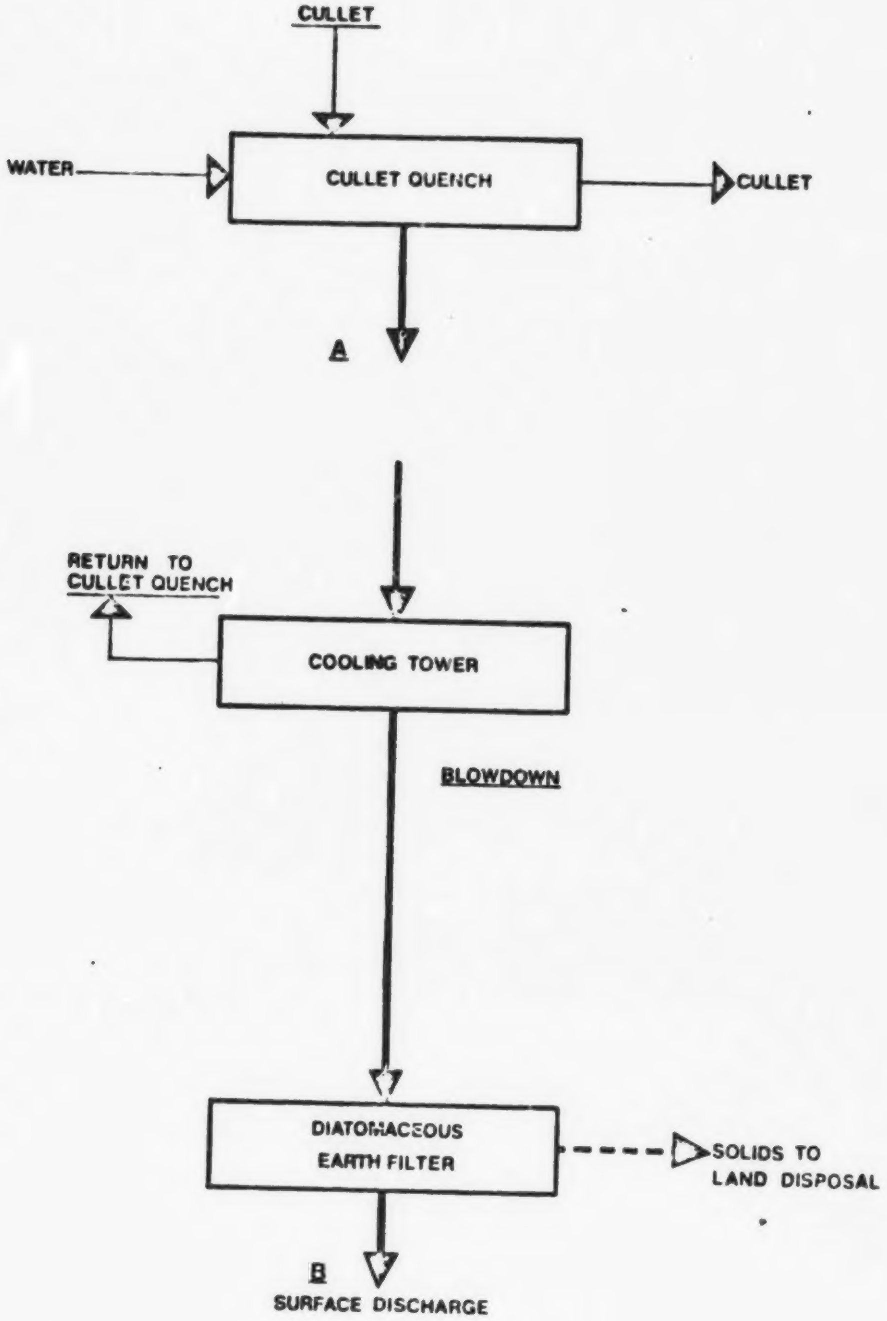

FIGURE 12

WASTE WATER TREATMENT

GLASS TUBING MANUFACTURING

DRAFT

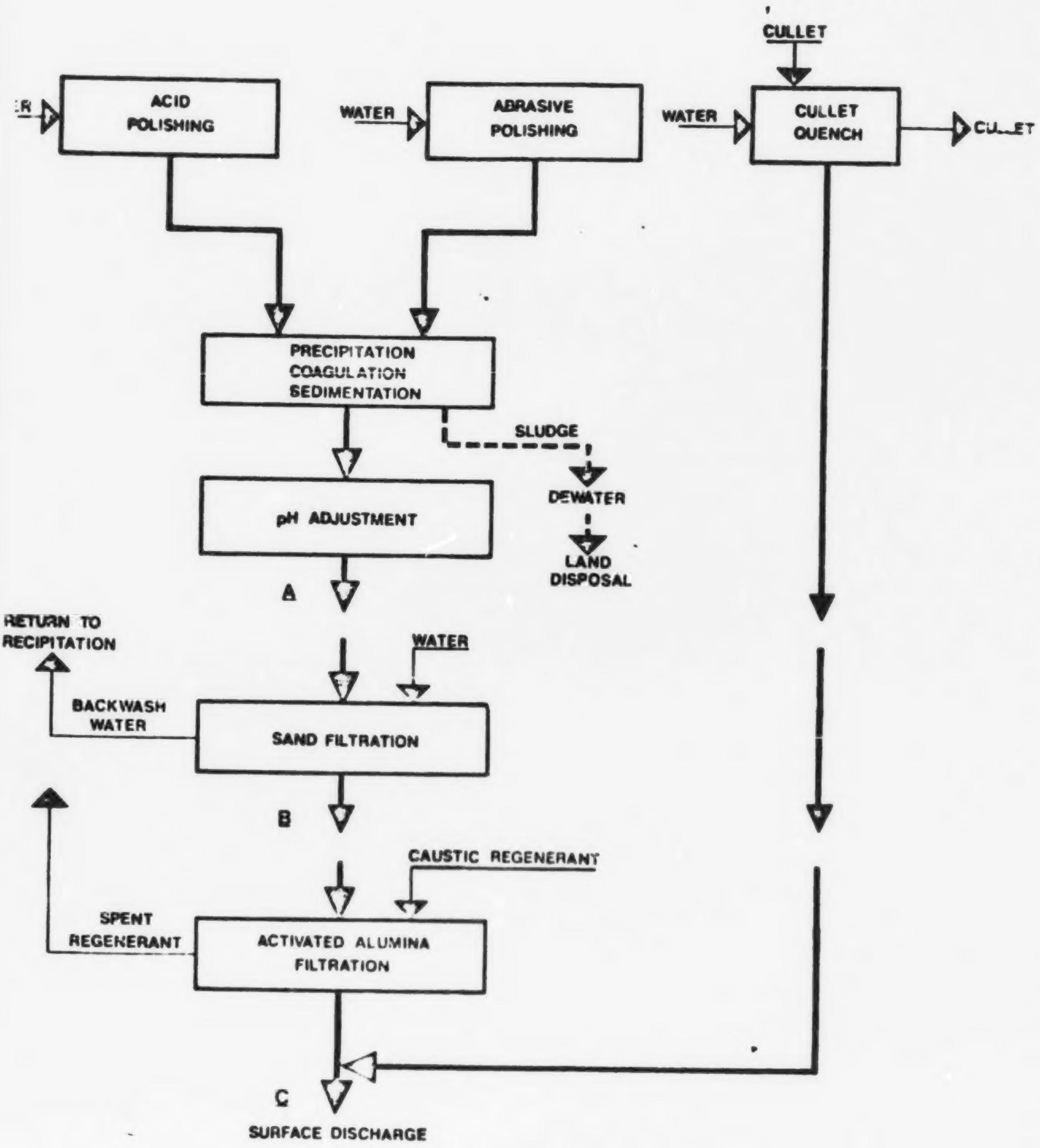

FIGURE 13

WASTE WATER TREATMENT

TELEVISION PICTURE TUBE ENVELOPE MANUFACTURING

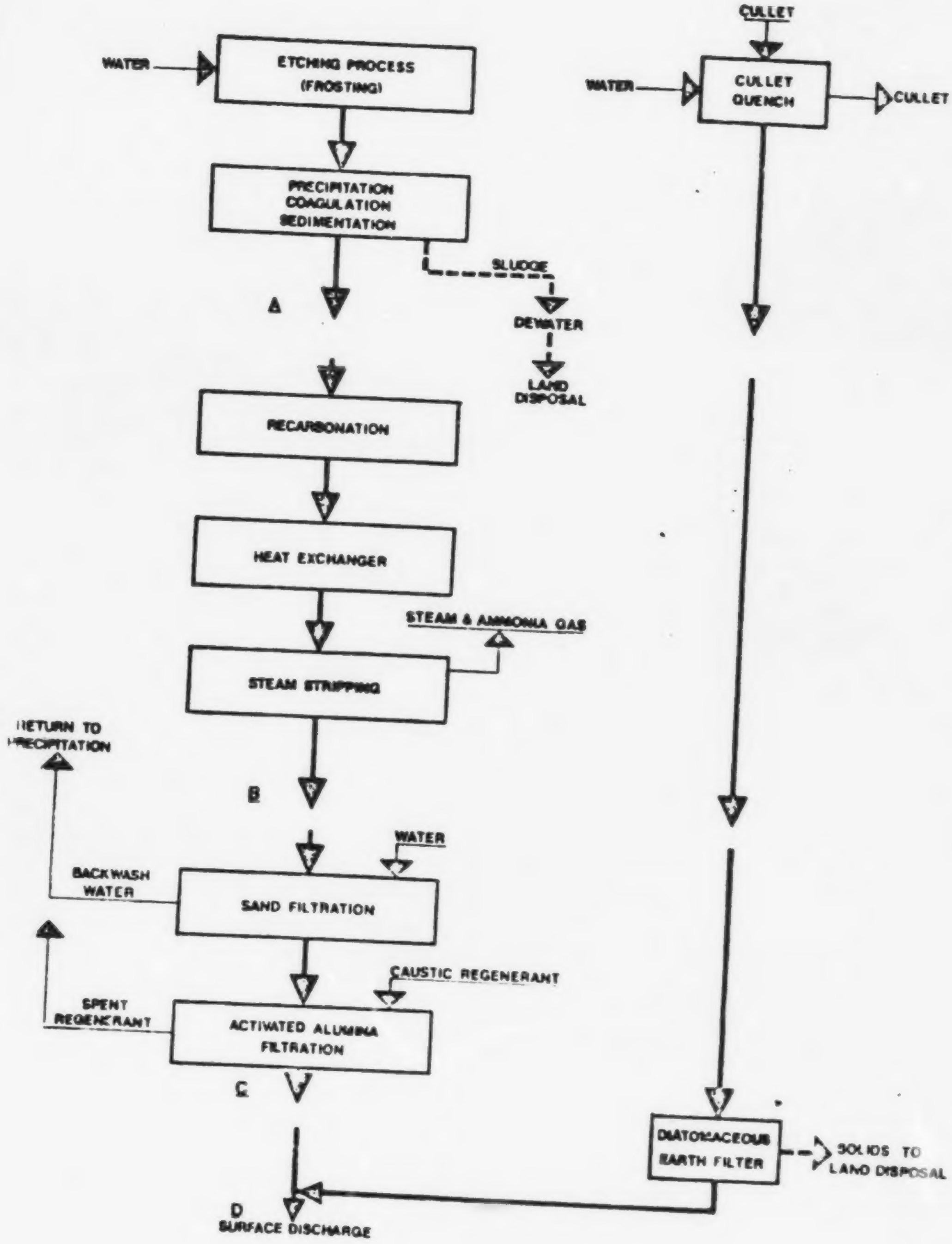

FIGURE 14

WASTE WATER TREATMENT

INCANDESCENT LAMP GLASS MANUFACTURING

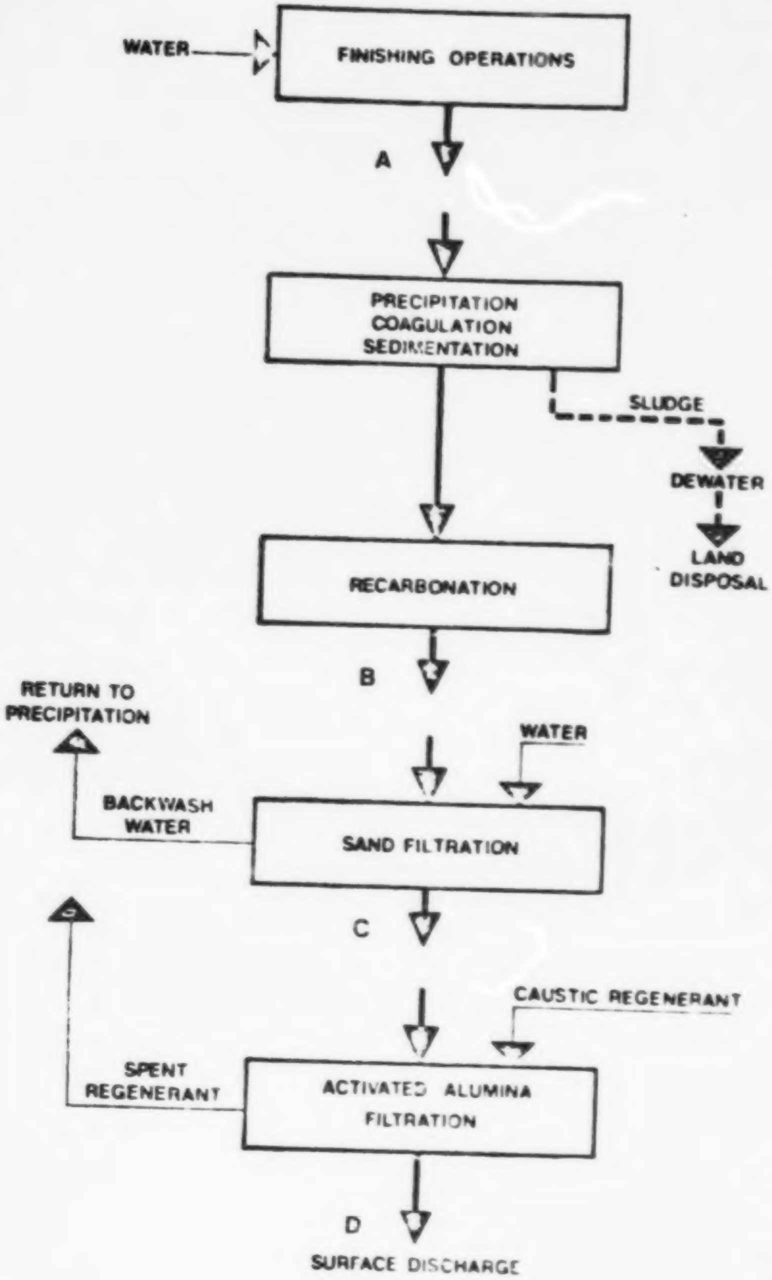

FIGURE 15

WASTE WATER TREATMENT

HAND PRESSED AND BLOWN GLASS MANUFACTURING

PRESSED & BLOWN GL

SECTION II

RECOMMENDATIONS

The recommended effluent limitations for pollutants of major significance are summarized below for the segments of the pressed and blown glass industry included in this document. The values listed are the maximum allowable average loading for any 30 consecutive calendar days. Maximum allowable daily averages are [illegible] times the values listed below.

The effluent limitations to be achieved with the Best Practicable Control Technology Currently Available are as follows:

	Suspended Solids	Oil	Fluoride	Lead	Ammonia
Glass Containers					
g/metric ton	70	30	-	-	-
(lb/short ton)	0.14	0.06	-	-	-
Machine Press and Blown Glass					
g/metric ton	[illegible]	56	-	-	-
(lb/short ton)	0.[illegible]	.11	-	-	-
Glass Tubing					
g/metric ton	[illegible]	[illegible]	-	-	-
(lb/short ton)	[illegible]	0.[illegible]	-	-	-
[illegible]					
g/metric ton	[illegible]	[illegible]	65	[illegible]	-
(lb/short ton)	[illegible]	[illegible]	[illegible]	[illegible]	-
In[illegible] Envelope Forming					
g/metric ton	[illegible]	[illegible]	-	-	-
(lb/short ton)	[illegible]	[illegible]	-	-	-

	Suspended Solids	Oil	Fluoride	Lead	Ammonia
[illegible]					
[illegible] (frosted)	[illegible]	-	[illegible]	-	100
(lb/short ton) (frosted)	0.17	-	0.14	-	0.20
[illegible] Frosted and [illegible]					
mg/l	25	-	15	1.0	-
pH	Between 6.0 and 9.0 (all subcategories)				

[illegible] the Best Available Control Technology Economically Achievable, the effluent limitations are as follows:

	Suspended Solids	Oil	Fluoride	Lead	Ammonia
[illegible] Containers					
[illegible] metric ton	0.4	0.4	-	-	-
[illegible]	0.0008	0.0008	-	-	-
[illegible]					
[illegible]	1.8	1.8	-	-	-
[illegible]	0.0036	[illegible]	-	-	-
[illegible]	0.1	[illegible]	-	-	-
[illegible]	[illegible]	[illegible]	-	-	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	[illegible]	[illegible]	-	-	-
[illegible]	[illegible]	[illegible]	-	-	-

Phar.

	Suspended Solids	Oil	Fluoride	Lead	Ammonia
[illegible]					
[illegible]					
[illegible]	17	-	7	-	100
[illegible]					
[illegible]	0.034	-	0.014	-	0.21
[illegible]					
[illegible]					
mg/l	5	-	2	0.1	-
pH	Between 6.0 and 9.0 (all subcategories)				

Recommended effluent limitations and standards of performance for new point sources are the Best Available Control Technology Economically Achievable.

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TABLE 1

GLASS CONTAINER PLANTS

COMPANY NAME	PLANT LOCATION
Anchor Hocking	Jacksonville, Fla.
	Houston, Texas
	Gurnee, Ill.
	Connellsville, Pa.
	Salem, N. J.
	Winchester, Ind.
	San Leandro, Calif.
Ball	Mundelein, Ill.
	El Monte, Calif.
Brockway Glass	Muskogee, Okla.
	Clarksburg, W. Va.
	Lapel, Ind.
	Ada, Okla.
	Freehold, N. J.
	Zanesville, Ohio
Chattanooga Glass	Chattanooga, Tenn.
	Corsicana, Texas
	Gulfport, Miss.
	Mt. Vernon, Ohio
	Keyser, W. Va.
Columbine Glass	Wheat Ridge, Colo.
Foster-Forbes Glass	Marion, Ind.
Gayner Glass Works	Salem, N. J.
Glass Containers	Indianapolis, Ind. ✓
	Danville, Conn.
	Jackson, Miss.
	Parker, Pa.
	Marienville, Pa.
	Knox, Pa.
	Forest Park, Ga.
	Palestine, Texas
	Antioch, Calif.
	Gas City, Ind. ✓
	Hayward, Calif.
	Vernon, Calif.

TABLE 1 (Contd.)

GLASS CONTAINER PLANTS

COMPANY NAME	PLANT LOCATION
Glenshaw Glass	Glenshaw, Pa.
Kerr Glass Mfg.	Millville, N. J. Plainfield, Ill. Dunkirk, Ind. ✓ Santa Ana, Calif. Sand Springs, Okla.
Latchford Glass	Los Angeles, Calif.
Laurens Glass	Henderson, N. C. Laurens, S. C. Ruston, La.
Liberty Glass	Sapulpa, Okla.
Madera Glass	Madera, Calif.
Maryland Glass	Baltimore, Md.
Metro Containers	Jersey City, N. J. Carteret, N. J. Dolton, Ill. Washington, Pa.
Midland Glass	Shakopee, Minn.
Northwestern Glass	Seattle, Wash.
Obear-Nester	E. St. Louis, Ill. Lincoln, Ill.
Pierce Glass	Port Allegany, Pa.
Owens-Illinois	Huntington, W. Va. Fairmont, W. Va. Alton, Ill. Streator, Ill. Gas City, Ind. Bridgeton, N. J. Waco, Texas Oakland, Calif.

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TABLE 1 (Contd.)

GLASS CONTAINER PLANTS

COMPANY NAME	PLANT LOCATION
Owens-Illinois (Contd.)	Clarion, Pa.
	Los Angeles, Calif.
	Brockport, N. J.
	Charlotte, Mich.
	New Orleans, La.
	Atlanta, Ga.
	North Bergen, N. J.
	Lakeland, Fla.
	Portland, Ore.
	Tracy, Calif.
Puerto Rico Glass	San Juan, P. R.
Thatcher Glass Mfg.	Lawrenceburg, Ind.
	Saugus, Calif.
	Elmira, N. Y.
	Wheaton, N. J.
	Tampa, Fla.
	Streator, Ill.

TABLE 2

PRESSED AND BLOWN GLASS PLANTS

COMPANY NAME	PLANT LOCATION	
	Machine-Pressed and Blown Glassware Plants	
Anchor Hocking	Lancaster, Ohio (Plant #1) Lancaster, Ohio (Plant #2)	
Brockway Glass	Clarksburg, W. Va.	
Corning Glass Works	Corning, N. Y. Muskogee, Okla. Greenville, Ohio Danville, Va. Harrodsburg, Ky.	
Federal Glass	Columbus, Ohio	
General Electric	Niles, Ohio Somerset, Ky.	
Owens-Illinois	Toledo, Ohio Walnut, Calif.	13
	Tubing Plants	
Corning Glass Works	Blacksburg, Va. Danville, Ky.	
General Electric	Logan, Ohio Jackson, Miss. Bridgeville, Pa.	
GTE-Sylvania	Greenland, N. H.	
Westinghouse Electric	Fairmont, W. Va.	7
	Television Picture Tube Envelope Plants	
Corning Glass Works	Albion, Mich. Bluffton, Ind. ✓ State College, Pa.	
Owens-Illinois	Columbus, Ohio Pittston, Pa.	5

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TABLE 2 (Contd.)

PRESSED AND BLOWN GLASS PLANTS

Incandescent Lamp Envelope Plants

COMPANY NAME	PLANT LOCATION
Corning Glass Works	Central Falls, R. I. Wellsboro, Pa.
General Electric	Lexington, Ky. Niles, Ohio Cleveland, Ohio

Hand-Pressed and Blown Glassware Plants

COMPANY NAME	PLANT LOCATION
Colonial Glass	Deanville, W. Va.
Fenton Art Glass	Williamstown, W. Va.
Fostoria Glass	Moundsville, W. Va.
Gillinder Brothers	Port Jervis, N. Y.
Louie Glass	Weston, W. Va.
Minners Glass	Salem, W. Va.
Pilgrim Glass	Ceredo, W. Va.
Viking Glass	New Martinsville, W. Va. Huntington, W. Va.
West Virginia Glass Specialty	Weston, W. Va.

TABLE 3

PLANTS VISITED

Plant Types	No. of Plants	Type of Data Obtained	
Glass Container	3	(1)	(2)
Machine Pressed and Blown	2	(1)	(2)
Tubing	1		(2)
TV Picture Tube Envelope	2	(1)	(2)
Incandescent Lamp Envelope	1	(1)	(2)
Hand Pressed and Blown	4	(1)	(2)

(1) - Individual process or subcategory.

(2) - End-of-pipe including all process and auxiliary wastes.

TABLE 4

[illegible] AND BLOWN GLASS MANUFACTURING
[illegible] DATA (a)

[illegible]	[illegible] of Plants	[illegible] Plant Size [illegible]	Range (metric tons/day)	Average Plant Size (short tons/day)	Range (short tons/day)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	134 - [illegible]
[illegible]	[illegible]	[illegible]	[illegible] - 347	[illegible]	44 - [illegible]
[illegible]	[illegible]	[illegible]	[illegible] - 164	110	44 - [illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	156 - [illegible]
[illegible]	[illegible]	[illegible]	[illegible] - 249	[illegible]	155 - [illegible]
[illegible]	[illegible]	[illegible]	[illegible] - 6.5	4.0	0.8 - [illegible]

(a) [illegible] based on weight of glass pulled from furnace in tons; [illegible] on weight of finished product.

- [illegible]
- [illegible] pressed and blown
- [illegible]
- [illegible]
- [illegible]
- [illegible]

TABLE 10 (Cont.)

RAW WASTE WATER (a)
HAND PRESSED AND BLOWN GLASS MANUFACTURING

		Alkali Washing			
Flow	4795	l/metric ton	1150	gal/short ton	
Temperature (b)	57C		135F		
pH	11				
Suspended Solids	0.08	kg/metric ton	0.16	lb/short ton	17 mg/l
		Acid Polishing			
Flow	5380	l/metric ton	1290	gal/short ton	
Temperature (b)	46C		114F		
pH	2				
Suspended Solids	1.2	kg/metric ton	2.4	lb/short ton	220 mg/l
Lead	0.17	kg/metric ton	0.33	lb/short ton	31 mg/l
Fluoride	10.6	kg/metric ton	21.3	lb/short ton	1980 mg/l
		Etching			
Flow	36,530	l/metric ton	8760	gal/short ton	
Temperature (b)	33C		91F		
pH	4				
Suspended Solids	0.29	kg/metric ton	0.58	lb/short ton	8 mg/l
Lead	0.29	kg/metric ton	0.58	lb/short ton	8 mg/l
Fluoride	17	kg/metric ton	34	lb/short ton	460 mg/l

(a) Representative of observed hand pressed and blown glass manufacturing waste water. Absolute value given for pH, increase over plant influent level for other parameters.

(b) Controlled temperature required for the process; therefore, absolute temperature given.

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TABLE 11

CONCENTRATION OF WASTE WATER PARAMETERS PRESSED AND BLOWN GLASS MANUFACTURING

	TYPICAL RAW WASTE WATER CONCENTRATION (a)			
	Glass Container	Machine Pressed and Blown	Tubing	Television Picture Tube Envelope
Temperature C	[illegible]	8	4.5	8
pH	[illegible]	7.8	7.9	
BOD, mg/l	5	5		
COD, mg/l	50	50	10	35
Suspended Solids, mg/l	24	25	27	335
Oil, mg/l	10	10	10	10
Dissolved Solids, mg/l				260
Fluoride, mg/l				143
Lead, mg/l				30

(a) Increase over background concentration for all parameters except for pH.

TABLE 12

CONCENTRATION OF WASTE WATER PARAMETERS
INCANDESCENT LAMP GLASS MANUFACTURING

	TYPICAL RAW WASTE WATER CONCENTRATION (a)	
	Cullet Quenching	Frosting Rinse Water
Temperature C	8	38(b)
pH	8.6	3.0
COD, mg/l	25	25
Suspended Solids, mg/l	25	100
Oil, mg/l	25	
Fluoride, mg/l		2800
Ammonia, mg/l		650

(a) Increase over background concentration for all parameters except for pH.

(b) Controlled temperature required for the process; therefore, absolute temperature given.

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TABLE 13

CONCENTRATION OF WASTE WATER PARAMETERS HAND PRESSED AND BLOWN GLASS MANUFACTURING

	TYPICAL RAW WASTE WATER CONCENTRATION (a)					
	Crack-Off and Polishing	Grinding and Polishing	Machine Cutting	Alkali Washer	Acid Polishing	Acid Etching
Temperature C	2.8	2.8	3.6	57	4	33
pH	3.2		10.0	11.2	2.2	4.0
Suspended Solids, mg/1	36	4350	2580	17	220	8
Fluoride, mg/1	194				1980	462
Lead, mg/1	.96	.43	100		31	7.9

(a) Representative of observed hand pressed and blown glass manufacturing waste water. Increase over background concentration for all parameters except for pH.

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TABLE 14

WATER EFFLUENT TREATMENT COSTS
GLASS CONTAINER MANUFACTURING

Alternative Treatment or Control	1977 A	1983 ($1000) B	[illegible] C
Investment	0	285.	312.
Annual Costs:			
Capital Costs	0	22.8	25.
Depreciation	0	14.3	15.7
Operating and Maintenance Costs (excluding energy and power costs)	0	17.2	23.
Energy and Power Costs	0	1.8	3.2
Total Annual Cost	0	56.1	66.9

Effluent Quality:

Effluent Constituents	Raw Waste Load	Resulting Effluent Levels		
Flow (l/metric ton)	2920	2920	77	77
Oil (g/metric ton)	30	30	2	0.4
Suspended Solids (g/metric ton)	70	70	2	0.4
Flow (l/sec)	15.3	15.3	.41	.41
Oil (mg/l)	10	10	25	5
Suspended Solids (mg/l)	24	24	25	5

TABLE 15

WATER EFFLUENT TREATMENT COSTS
MACHINE PRESSED AND BLOWN GLASS MANUFACTURING

Alternative Treatment or Control Technologies	A	($1000) B	C
Investment	0	187.	214.
Annual Costs:			
Capital Costs	0	15.	17.2
Depreciation	0	9.4	10.8
Operating and Maintenance Costs (excluding energy and power costs)	0	16.2	22.6
Energy and Power Costs	0	1.2	2.6
Total Annual Cost	0	41.8	53.2

Effluent Quality:

Effluent Constituents	Raw Waste Load	Resulting Effluent Levels		
Flow (l/metric ton)	5630	5630	370	370
Oil (g/metric ton)	56	56	9	1.8
Suspended Solids (g/metric ton)	140	140	9	1.8
Flow (l/sec)	5.9	5.9	.39	.39
Oil (mg/l)	10	10	25	5
Suspended Solids (mg/l)	25	25	25	5

TABLE 16

WATER EFFLUENT TREATMENT COSTS
GLASS TUBING MANUFACTURING

Alternative Treatment or Control Technologies:	($1000) A	($1000) B
Investment	0	97.6
Annual Costs:		
Capital Costs	0	7.8
Depreciation	0	4.9
Operating and Maintenance Costs (excluding energy and power costs)	0	9.7
Energy and Power Costs	0	0.3
Total Annual Cost	0	22.7

Effluent Quality:

Effluent Constituents	Raw Waste Load	Resulting Effluent Levels	
Flow (l/metric ton)	8340	8340	21
Oil (g/metric ton)	80	80	0.1
Suspended Solids (g/metric ton)	230	230	0.1
Flow (l/sec)	8.8	8.8	.022
Oil (mg/l)	10	10	5
Suspended Solids (mg/l)	27	27	5

TABLE 17

WATER EFFLUENT TREATMENT COSTS
TELEVISION PICTURE TUBE ENVELOPE MANUFACTURING

Alternative Treatment or Control Technologies:	($1000) A	B	C
Investment	0	67.0	231.
Annual Costs:			
Capital Costs	0	5.4	18.5
Depreciation	0	3.4	11.6
Operating and Maintenance Costs (excluding energy and power costs)	0	8.7	37
Energy and Power Costs	0	0.9	1
Total Annual Cost	0	15.4	68.1

Effluent Quality:

Effluent Constituents	Raw Waste Load	Resulting Effluent Levels		
Flow (l/metric ton)	12,500	12,500	12,500	12,500
Oil (g/metric ton)	130	130	130	130
Suspended Solids (g/metric ton)	4200	130	60	60
Fluoride (g/metric ton)	1800	65	45	9
Lead (g/metric ton)	390	4.5	0.45	0.45
Flow (l/sec)	33	33	33	33
Oil (mg/l)	10	10	10	10
Suspended Solids (mg/l)	335	10	5	5
Fluoride (mg/l)	143	5.2	3.5	71
Lead (mg/l)	30	35	.035	.035

TABLE 18

WATER EFFLUENT TREATMENT COSTS
INCANDESCENT LAMP ENVELOPE MANUFACTURING

Alternative Treatment or Control Technologies:	($1000)			
	A	B	C	D
Investment	0	470	624	697
Annual Costs:				
Capital Costs	0	37.6	49.9	55.7
Depreciation	0	23.5	31.2	34.8
Operating and Maintenance Costs (excluding energy and power costs)	0	63	81.6	90.9
Energy and Power Costs	0	116	116.5	118.4
Total Annual Costs	0	240	279	300

Effluent Qualtiy:

Effluent Constituents	Raw Waste Load	Resulting Effluent Levels			
Flow (l/metric ton)	7420	7420	7420	7420	7420
Oil (g/metric ton)	120	120	120	120	22
Suspended Solids (g/metric ton)	400	190	190	130	37
Fluoride (g/metric ton)	8300	68	68	7	7
Ammonia (g/metric ton)	1950	1940	100	100	100
Flow (l/sec)	13.7	13.7	13.7	13.7	13.7
Oil (mg/l)	15	15	15	15	3
Suspended Solids (mg/l)	54	25	25	17	5
Fluoride (mg/l)	1110	8	8	1	1
Ammonia (mg/l)	260	260	12	12	12

TABLE [illegible]

[illegible]
[illegible] MANUFACTURING

[illegible]	($1,000)			
	A	B	C	D
Investment	0	104	[illegible]	371
Annual Costs:				
Capital Costs	0	22.[illegible]	[illegible]	29.[illegible]
Depreciation	0	14.[illegible]	15.[illegible]	18.[illegible]
Operating and Maintenance Costs (excluding energy and power costs)	[illegible]	15.6	15.7	[illegible]
Energy and Power Costs	0	2.6	2.[illegible]	2.7
Total Annual Cost	0	[illegible].1	63.5	72.3

Effluent Quality:

Effluent Constituent	Raw Waste Load	Resulting Effluent Levels			
Flow (1/sec)	0.61	0.61	0.61	0.61	0.61
pH [illegible]	2	2	9	9	9
[illegible] Solids (mg/1)	544	544	25	5	5
[illegible]	402	402	[illegible]	[illegible]	2
Lead (mg/1)	11.4	11.4	1	0.1	0.1

BPT

TABLE 20
RECOMMENDED MONTHLY AVERAGE EFFLUENT LIMITATIONS USING BEST PRACTICABLE CONTROL TECHNOLOGY CURRENTLY AVAILABLE

	Suspended Solids	Oil	Fluoride	Lead	Ammonia	pH
Glass Containers						
kg/metric ton	70	30	-	-	-	6-9
(lb/short ton)	0.14	0.06	-	-	-	
Machine Pressed and Blown Glass						
kg/metric ton	140	56	-	-	-	6-9
(lb/short ton)	0.28	0.11	-	-	-	
[illegible]						
kg/metric ton	230	85	-	-	-	6-9
(lb/short ton)	0.46	0.17	-	-	-	
Television Picture Tube Envelope						
kg/metric ton	130	130	65	4.5	-	6-9
(lb/short ton)	0.25	0.25	0.13	0.009	-	
Incandescent Lamp Envelopes						
Forming						
kg/metric ton	110	110	-	-	-	6-9
(lb/short ton)	0.23	0.23	-	-	-	
Frosting						
kg/metric ton frosted	85	-	68	-	100	6-9
(lb/short ton frosted)	0.17	-	0.14	-	0.20	
Hand Pressed and Blown						
mg/l	25	-	15	1.0	-	6-9

NOTE: THESE ARE TENTATIVE RECOMMENDATIONS BASED UPON INFORMATION IN THIS REPORT AND ARE SUBJECT TO CHANGE BASED UPON COMMENTS RECEIVED AND FURTHER INTERNAL REVIEW BY EPA.

Reproduced from best available copy.

BAT

TABLE 21

RECOMMENDED MONTHLY AVERAGE EFFLUENT LIMITATIONS USING BEST AVAILABLE CONTROL TECHNOLOGY ECONOMICALLY ACHIEVABLE

	Suspended Solids	Oil	Fluoride	Lead	Ammonia	pH
[illegible] Containers						
[illegible] ton	[illegible]	[illegible]	-	-	-	[illegible]
[illegible] ton)	[illegible]	[illegible]	-			
[illegible] and Blown Glass						
[illegible]	1.8	1.8	-	-	-	6-9
[illegible]	0.0036	0.0036	-	-		
[illegible]						
[illegible] ton	0.1	0.1	-	-		6-9
[illegible] ton)	0.0002	0.0002	-	-		
[illegible] Picture Tube Envelope						
[illegible] ton	60	130	9	[illegible]	-	6-9
[illegible] ton)	0.12	[illegible]	0.018	[illegible]	-	
[illegible] Lamp Envelopes						
[illegible] ton	23	23	-	-	-	6-9
[illegible]	0.045	0.045	-	-	-	
[illegible]						
[illegible] ton Treated	17	-	7	-	[illegible]	6-9
[illegible] ton frosted)	0.034	-	0.014	-	[illegible]	
[illegible] Blown						
	5	-	2	0.1	-	

[illegible]

CONVERSION TABLE

Multiply (English Units)	By	To Obtain (Metric Units)
ENGLISH UNIT	CONVERSION	METRIC UNIT
British Thermal Unit	0.252	kilogram-calories
BTU/short ton	0.278	kilogram-calories/metric ton
feet	0.3048	meters
gallons	3.785	liters
gallons/minute	0.0631	liters/second
gallons/short ton	4.17	liters/metric ton
horsepower	10.70	kilogram-calories/minute
inches	2.54	centimeters
pounds	0.454	kilograms
pounds/short ton	0.5	kilograms/metric ton
million gallons/day	3785	cubic meters/day
square feet	0.0929	square meters
tons (short)	0.907	metric tons (1000 kilograms)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

August [illegible]

MEMORANDUM

SUBJECT: [illegible]
[illegible]

FROM : Dan B[illegible], Member - [illegible]

TO : [illegible] Water Quality Information
Advisory Committee

The following is a summary of comments and recommendations.

PLASTICS AND SYNTHETIC MATERIALS MFG.
SYNTHETIC RESIN SEGMENT:

1. The Development Document is not consistent in the names used to describe similar or identical products.

2. Raw waste loads presented are not for the named subcategories designated (see Table [illegible]-1).

Is it possible to give names used in subcategories and subparts to the chemical classifications used in Tables 5-1 and 5-2?

3. The wide ranges in flow and constituents make it difficult to believe that [illegible] of the [illegible] shown can be in the same subcategory (subpart).

cc: Al Cywin, Director
Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

August 22, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on Rule-making Package
on Plastics and Synthetics

FROM : Effluent Standards and Water Quality Information
Advisory Committee (member-Bloodgood)

TO : ES&WQIAC Office

General Information

More than 60 company operations are responsible for the manufacture of products which have been grouped in 15 product subcategories. There are also 3 product subcategories from Phase I included in this group.

There is an estimated 2.6 billion pounds of products produced annually and 24 mgd of water is used in the processing.

Subcategories

The development document says, "The most effective means of categorizing the plastic industry for setting effluent guidelines is based on the characteristics of the wastewater."

> Major Subcategory I- a low raw waste load; raw waste load less than 10 units/1000 units of product; attainable low BOD_5 concentrations- less than 20 mg/l.
>
> Major Subcategory II- high raw waste load; raw waste load greater than 10 units/1000 units of product; attainable low BOD_5 concentrations.
>
> Major Subcategory III- high raw waste load; attainable medium BOD_5 concentrations- in the 30-75 mg/l range.
>
> Major Subcategory IV- high raw waste load; attainable high BOD_5 concentrations over 75 mg/l.

TABLE XI-1

LOWEST DEMONSTRATED WASTEWATER FLOWS

Product Subcategory	gal/1000 lbs	Reciprocal of million #s of waste 1000#s of Product
Q Alkyd molding compounds and unsaturated polyester resins	40	[illegible]
	13,000	[illegible]
L Cellulose nitrate	150	[illegible]
M Ethylene-vinyl acetate	4,000	[illegible]
O Fluorocarbons	800	[illegible]
S Polyamides (Nylon 6/12 only)	950	[illegible]
T Polyester resins - (thermoplastic)	200	[illegible]
P Polypropylene fibers	5,600	[illegible]
Polyvinyl butyral		
U Silicones	12,000	[illegible]
Multi-products	1,250	[illegible]
Fluid products		

TABLE IX-3

DEMONSTRATED WASTEWATER FLOW

	Wastewater Flow Basis gal/1000#	
Polyvinyl Chloride		
Suspension	1800	
Emulsion	650	
Bulk	3[illegible]0	
Polyvinyl Acetate	1000	
Polystyrene		
Suspension	1100	
Bulk	200	
Polypropylene	1000	
Lo Density Polyethylene	2100	
Hi Density Polyethylene		
Solvent	1500	
Polyform	260	
Cellophane	29,000	
Rayon	16,000	
ABS/SAN	2,100	
Polyester		
Resin	950	
Fiber	950	
Resin and Fiber Continuous	950	
Resin and Fiber Batch	1,9[illegible]	
Nylon 66		
Resin	600	
Fiber	700	
Resin and Fiber	1,500	
Nylon 6		
Resin and Fiber	6,800	
Resin	4,500	
Fiber	2,300	
Cellulose Acetate		
Resin	5,000	
Fiber	5,[illegible]	
Resin and Fiber	10,000	
Epoxy Resins		
Batch & Continuous (liquid, solid & solution)	2,900	[illegible]
Batch Fusion (solid & solution)	850	[illegible]
Phenolic Resins		
Batch (liquid)	830	[illegible] * See below
Urea & Melamine Resins		
Batch (liquid)	123	[illegible]

* Reciprocal of million #s of Waste 1000#s of Product

Line 320 "No guidelines are presented for these products. However, the methodology for determining permit conditions on a case by case basis may be found in the "Development Document."

Subpart N - Ethylene Vinyl Acetate Copolymers
Subpart O - Fluorocarbons
Subpart P - Polypropylene Fibers
Subpart Q - Alkyds and Unsaturated Polyester Resins
Subpart R - Cellulose Nitrate
Subpart S - Polyamides (Nylon 6/12)
" T - Polyester Resins (Thermoplastic)
" U - Silicones
" V - Epoxy Resins
" W - Phenolic Resins
" X - Urea and Melamine Resins

BOD, COD, and suspended solids are the critical constituents requiring guideline standards. Other constituents are even more specific to the product subcategory.

See lines 421 to 450

Flow 35-[illegible] gal/[illegible]

Ethylene Vinyl Acetate Copolymers

BPT	Subcategory N #s/1000#s				BAT #s/[illegible]			
BOD5	.14	*112	.07	*56	.[illegible]	*[illegible]	.[illegible]	[illegible]
COD	.70	*560	.35	*280	.[illegible]	*[illegible]	.[illegible]	*1[illegible]
TSS	.35	*280	.19	*152	.[illegible]	[illegible]	.[illegible]	[illegible]
pH	6-9				6-[illegible]			

N.S.

BOD5	.10	*80	.05	*40
COD	.40	*320	.22	*176
TSS	.05	*40	.04	*32
pH	6-9			

([illegible] gal/1[illegible])

Fluorocarbons

BPT	Subpart O #s/1000#s				BAT #s/1000#s			
BOD5	7.0	*210	3.6	*108	3.3	*9[illegible]	2.2	*[illegible]
COD	13	*390	6.7	*201	5.[illegible]	*1[illegible]	4.[illegible]	*12[illegible]
TSS	18	*540	9.9	*297	1.8	*54	1.6	*4[illegible]
Fluor.	1.2	*36	.6	*18	1.2	*36	.6	*1[illegible]
pH	6-9				6-9			

Note: * figures denote mg/l

N.S.

BOD5	1.6	*48	.80	*24
COD	2.9	*87	1.4	*42
TSS	.83	*25	.57	*17
Fluorides	1.3	*39	.67	*20
pH	6-9			

* figures denote mg/l

Polypropylene Fibers (200 gal/1000#s)

BPT Subpart P BAT

BOD5	.78	* 468	.40	* 240	.33	* 198	.22	*132
COD	3.9	*2338	2.0	*1199	.59	* 354	.40	*240
TSS	2.0	*1199	1.1	* 659	.18	* 108	.16	* 96
O&G	1.0	* 599	.5	* 300	.18	* 108	.092	* 55
pH	6-9							

N.S.

BOD5	.08	*48	.04	*24
COD	.14	*84	.07	*42
TSS	.04	*24	.03	*18
O&G	.033	*20	.017	*10
pH	6-9			

Alkyds and Unsaturated Polyester Resins (40/gal/100#s

BPT Subpart Q BAT

BOD5	.60	*1799	.33	*990	.14	*420	.10	*300
COD	3.0	*8997	1.7	*5098	.74	*2219	.52	*1559
TSS	.4	*1199	.22	*660	.04	*120	.03	*90
PB	.0037	* 11	.0017	* 5	.00011	*0.3	000.55	*.16
pH	6-9				6-9			

N.S.

BOD5	.03	* 90	.02	* 60
COD	.20	*600	.11	*330
TSS	.008	* 24	.006	* 18
Pb	.00002	* .06	.00001	* .03
pH	6-9			

Cellulose Nitrate

gal/1000#s
Flow 13300-20400
*(13,000

BPT Subpart R BAT

BOD5	26	*240	14	*129	9.4	*8[illegible]	6.9	* 64
COD	85	*784	46	*424	4[illegible]	*433	34	*314
TSS	17	*157	9.4	* 87	2.5	*23	2.1	* 19
pH	6-9				6-9			

Note: * figures denote mg/l

N.S.

BOD_5	11	* 101	6.0	*55
COD	54	* 498	30	*277
TSS	2.7	* 25	1.8	*17
pH	6-9		6-9	

Polyamid (Nylon 6/12)   (800 gal/100#s)

BPT Subpart S   BAT

BOD_5	1.2	*180	.66	99	.50	75	.37	*55
COD	6.0	*899	3.3	495	2.6	390	1.9	*285
TSS	.80	*120	.44	67	.13	19	.11	* 16
pH	6-9				6-9			

N.S.

BOD_5	.67	*100	.37	*55
COD	3.4	*510	1.9	*285
TSS	.17	* 25	.11	* 16
pH	6-9			

Polyester Resins   (Flow 26-770 gal/1000#s
(950 gal/1000#s)
Thermoplastic

BPT Subpart T   BAT

BOD_5	1.4	*177	.78	98	.59	74	.44	* 56
COD	22	*2777	12.	1515	3.1	391	2.3	*290
TSS	.95	* 120	.52	66	.16	20	.14	* 18
pH	6-9				6-9			

N.S.

BOD_5	.80	*101	.44	* 56
COD	12	*1515	6.5	*820
TSS	.20	* 25	.14	* 18
pH	6-9			

Note: *Figures denote mg/l

Silicones

Flow 1000-33,500 gal/1000#s
(Multi Prod. 12,000/1000#s)
(Fluid Prod. 1250 gal/1000#s)

BPT (a) Subpart D
Multi-Prod. Plant

BPT Barometric Conden.

	Multi-Prod. Plant				Barometric Conden.	
BOD_5	26	*260	14	*140	15	8.2
COD	127	*1269	70	*699	75	41
TSS	17	* 170	91	* 10	10	5.4
Cu	.14	* 1.4	.071	* .07	.083	.042
pH	6-9				6-9	

BPT Fluid Prod. Plant

BOD_5	6.0	* 576	3.3	* 317
COD	30	*2878	17	*1631
TSS	4.0	* 384	2.2	* 211
Cu	.034	* 3.3	.017	* 1.6
pH	6-9			

BAT Multi Prod. Plant

BOD_5	9.1	* 91	6.7	* 67
COD	47	*470	35	*350
TSS	2.4	* 24	2.0	* 20
Cu	.06	*0.6	.03	* 0.3
pH	6-9			

BAT Fluid Prod. Plants

BOD_5	1.6	*153	1.2	* 115
COD	8.5	*815	6.3	* 604
TSS	.44	* 42	.37	* 36
Cu	.011	* 1.1	.0055	* 0.53
pH	6-9			

	Multi Prod. Plant				Fluid Plant			
BOD_5	10	*100	5.5	*55	1.0	* 96	.57	* 55
COD	82	*819	46	*460	8.5	*815	4.7	*451
TSS	2.5	* 25	1.7	* 17	.26	* 25	.18	* 17
Cu	.050	*0.5	.025	*.025	.005	*0.5	.0026	*.025
pH	6-9							

Epoxy Resins

(Batch & Cont. 29,000 gal/100#s)
(Batch & Fusion 800 gal/100#s)

Note: *Figures denote mg/l

(Cont'd on next page)

BPT Batch & Continuous Subpart V | BPT Batch Fusion Proc.

BOD_5	3.9	* 161	2.1	* 87	.45	* 63	.25	* 35
COD	58	*2398	32	*1323	6.7	* 945	3.9	*550
TSS	2.6	* 107	1.4	*58	.30	* 42	.17	* 24
Phenolic Comp.	.022	* 0.9	.011	*.05	.0025	*.035	.0013	*0.18
pH		6-9				6-9		

BAT Batch & Continuous | BAT Batch Fusion

BOD_5	1.3	* 54	.95	* 39	.17	* 24	.12	*17
COD	6.5	*269	4.8	*198	.88	*124	.65	*92
TSS	.33	* 14	.28	* 12	.05	* 7	.04	* 6
Phenolic Comp.	.0033	*0.14	.0017	*0.07	.0004	*0.06	.00022	*0.03
pH		6-9				6-9		

N.S.

Continuous Proc. | Batch Fusion Proc.

BOD_5	1.2	.67	.19	* 27	.11	*16
COD	12.9	9.2	2.1	*296	1.5	*212
TSS	.30	.20	.05	*7	.03	*4
Phenolic Comp.	* .0024	* .0012	.00038	*0.05	.00019	*0.03
pH	6-9			6-9		

Phenolic Resins *(830 gal/1000#s)

BPT Subpart W | BAT

BOD_5	6.7	*968	3.7	* 535	1.3	*188	.96	*139
COD	34	*4912	19	*2745	6.8	*9825	5	*722
TSS	2.7	*390	1.5	* 2.7	.35	*51	.30	*43
Phenolic Comp.	.023	*3.3	.011	* 1.6	.0035	*0.5	.0018	*0.26
pH		6-9				6-9		

N.S.

BOD_5	1.3	*188	.69	*100
COD	34	*4912	19	*2745
TSS	.31	*45	.21	*30
Phenolic Comp.	.0025	*0.36	.0013	*0.19
pH		6-9		

Note: *Figures denote mg/l

Urea and Melamine Resins *(123 gal/1000#s)

	BPT Subpart X				BAT			
BOD_5	.38	*370	.20	* 195	.08	* 78	.06	*58
COD	5.5	*5361	3.2	*3119	.13	*127	.09	*88
TSS	.25	*244	.13	*127	.021	*20	.017	*17
pH		6-9					6-9	

N.S.

BOD_5	.11	*107	.06	*58
COD	.18	*175	.10	*97
TSS	.04	* 39	.02	*19
pH	6-9			

Treatment Processes Available

- Neutralization
- Screening
- Equalization
- Cooling
- Nutrient Addition
- Bio-oxidation
- Sludge Aeration
- Centrifuging
- Aerated Lagoons
- Coagulation
- Clarification
- Trickling Filters
- Polishing Lagoon
- Skimming
- Oil Separation
- Bio-Aeration,Calification w/Chem. Added
- Bio-Anaerobic
- Filtering
- Burning of Recovered Oil
- Recycle of Recovered Polymer
- Settling Basin
- Municipal Treatment
- Spray Oxidation
- Chlorination
- Activated Sludge
- Biological Coagulation

Recommendations and Comments

1. The Development Document is not consistent in the names used to describe similar or identical products.

2. Raw Waste Loads presented are not for the named subcategories designated (see Table 5-1).

Is it possible to give names used in subcategories and subparts to the chemical classifications used in Tables 5-1 and 5-2?

3. The wide ranges in flows and constituents makes it difficult to believe that variations of the magnitude shown can be in the same subcategory (subpart).

4. Great variations in mg/l of parameters listed for BPT and BAT in the various subparts. See Polypropylene Fibers, Oil and Grease, BAT 55 mg/l N.S. 10 mg/l.

5. Extremely high values for the BOD and COD for BPT for Polyester Resins.

6. Having BOD_5 and COD effluent limitations complicates the determination of compliance - non-compliance situation.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December 15, 1974

MEMORANDUM

SUBJECT: Report on the advanced draft copy of the promulgated Effluent Limitations Guidelines for Plastics and Synthetics Industry. Subcategories N, O, P, Q, R, S, T and U.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

PLASTICS AND SYNTHETICS
SUBCATEGORIES N, O, P, Q, R, S, T & U

General Information:

Subcategories V, W & X that appeared in the Proposed Guidelines have been omitted in the Draft of the Promulgated Guidelines. The Subcategories V, W & X will be promulgated at a later date when the economic impact review has been completed.

The Contractor's Report is the only development document available to the reviewer as of December 15, 1974.

Subcategories:

Subcategory N - Ethylene-Vinyl Acetate Copolymers
Subcategory O - Polytetrafluoroethylene
Subcategory P - Polypropylene Fiber
Subcategory Q - Alkyds and Unsaturated Polyester Resins
Subcategory R - Cellulose Nitrate
Subcategory S - Polyamide (Nylon 6/12)
Subcategory T - Polyester Resins (Thermoplastic)
Subcategory U - Silicones

Effluent Limitations:

The limitations for BPT, BAT and New Sources have been tabulated and they are shown in Table I, that compares the Proposed Guideline Limitations with the Draft Promulgated Guideline Limitations.

The changes made in the limitations of the U subcategory are complex and they are not clearly presented.

Pretreatment Standards for Existing Sources:

The documents presented include the Proposed Pretreatment Standards for New Sources. A summary of the proposed limitations are as follows:

Subcategory N

pH	no limitation
BOD_5	no limitation
TSS	no limitation
COD	no limitation

Subcategory O

pH	no limitation
BOD_5	no limitation
TSS	no limitation
COD	no limitation
Fluorides	Max. day 1.2#s/1000#s of product 30 day average .6#s/1000# of product

Subcategory P

pH	no limitation
BOD_5	no limitation
TSS	no limitation
Oil & Grease	no limitation
COD	no limitation

Subcategory Q

pH	no limitation
BOD_5	no limitation
TSS	no limitation
COD	no limitation

Subcategory R

pH	no limitation
BOD_5	no limitation
TSS	no limitation
COD	no limitation

Subcategory S

pH	no limitation
BOD_5	no limitation
TSS	no limitation
COD	no limitation

Subcategory T
pH no limitation
BOD_5 no limitation
TSS no limitation
COD no limitation

Subcategory U
pH no limitation
BOD_5 no limitation
TSS no limitation
COD no limitation
Copper U_1 max. day .0/0 Avg. 30 days .005
U_2 max. day .13 Avg. 30 days .067
U_3 max. day .084 Avg. 30 days .042

Economic Impact:

It has been estimated that the initial industrial investment for BPT will be $16,000,000 and that the annual operating cost will be $3,000,000 to implement the limitations indicated for the 45 point source discharges in this category. The number of threatened plants are 2 to 4, with 20 to 30 employees and an estimated < 1% of the plants.

Comments and Recommendations:

1. It is suggested that the limitations for Subcategory "I" be presented in a more easily comprehendable fashion.

2. Why are the New Source Limitations for Subcategory O more stringent than they are for BAT except for flucrides?

3. Why are the New Source Limitations for Subcategory P more stringent than they are for BAT?

4. Why are the New Source Limitations for Subcategory Q more stringent than they are for BAT?

5. Why are the New Source Limitations for Subcategory R more stringent than they are for BAT?

6. If the Draft Development Documents are not to accompany the Guidelines there should be flow values provided for each of the Subcategories.

7. Paragraphs 1, 2 and 3 of D, Major Changes, in the Action Memorandum on Synthetic the Polymer Segment of the Plastics and Synthetics Manufacturing Point Source Category are not at all clear.

8. It seems unreasonable to require the same limitation for fluorides in pretreatment for existing sources as is required for BPT of Subcategory O.

9. It seems unreasonable to require the same limitations for copper in pretreatment for existing sources as is required for BPT? Subcategory U_1, U_2 and U_3.

10. It is suggested that a more descriptive term be used to replace "no limitation" in the pretreatment standards for existing sources.

11. A Development Document is absolutely necessary in reviewing a guideline if a rational appraisal is to be prepared.

Attachment.

cc: Director, Effluent Guidelines Division

PLASTICS & SYNTHETICS MANUFACTURING

	BPT				BAT				New Sources 1			
	Proposed		Final		Proposed		Final		Proposed		Final	
	max Day	30 Day avg	max Day	30 Day avg.	max Day	30 Day avg.	max Day	30 Day avg	max Day	30 Day avg	max Day	30 Day avg
Subcategory N												
BOD5	0.14	0.07	.39	.20	.09	.06	.29	.19	.10	.05	.35	.18
COD	.70	.35	3.9	2.0	.29	.19	2.48	1.65	.40	.22	3.5	1.8
TSS	.35	.19	1.0	.55	.05	.04	.16	.14	.25	.04	.19	.13
Subcategory O												
BOD5	7.0	3.6	7.0	3.6	3.3	2.2	3.3	2.2	1.6	.80	1.6	.8
COD	13.0	6.7	13.	6.7	5.9	4.0	5.9	4.0	2.9	1.4	2.9	1.4
TSS	18.0	9.9	18	9.9	1.8	1.6	1.8	1.6	.83	.57	.83	.57
Fluorides	1.2	.6	1.2	.6	1.2	.6	1.2	.6	1.3	.67	1.2	.6
Subcategory P												
BOD5	.78	.40	.78	.40	.33	.22	.33	.22	.08	.04	.08	.04
COD	3.9	2.0	3.9	2.0	.59	.40	.59	.40	.14	.07	.14	.07
TSS	2.0	1.1	2.0	1.1	.18	.16	.18	.16	.04	.03	.04	.03
O&G	1.0	.5	1.0	.5	.18	.092	.18	.092	.033	.017	.033	.017
Subcategory Q												
BOD5	.60	.33	.60	.33	.14	.10	.14	.10	.03	.02	.03	.02
COD	3.0	1.7	3.0	1.7	.74	.52	.74	.52	.20	.11	.20	.11
TSS	.40	.22	.40	.22	.04	.03	.04	.03	.008	.006	.008	.006
Subcategory R												
BOD5	26	14.0	26	14	9.4	6.9	9.4	6.9	11.0	6.0	11	6.0
COD	85	46.0	85	46	47.0	34.0	47	34	54.0	30.0	54	30
TSS	17	9.4	17	9.4	2.5	2.1	2.5	2.1	2.7	1.8	2.7	1.8
Subcategory S												
BOD5	1.2	.66	1.2	.66	0.50	0.37	.50	.37	0.67	0.37	.67	.37
COD	6.0	3.3	6.0	3.3	2.6	1.9	2.6	1.9	3.4	1.9	3.4	1.9
TSS	.80	.44	.80	.44	.13	.11	.13	.11	.17	.11	.17	.11
Subcategory T												
BOD5	1.4	0.78	1.4	.78	0.59	0.44	.59	.44	0.80	0.44	.80	.44
COD	22	12	22	12	3.1	2.3	3.1	2.3	12	6.5	12	6.5
TSS	.95	.52	.95	.52	.16	.14	.16	.14	.20	.14	.20	.14
Subcategory U multiple prod												
BOD5	26	14	—	—	9.1	6.7	—	—	10.0	5.5	—	—
COD	127	70	—	—	47	35	—	—	82	46	—	—
TSS			—	—	2.4	2.0		—	2.5	1.7	—	—
Cu	.14	.071	—	—	.06	.03	—	—	.050	.025	—	—
+ Compounding												
BOD5	15	8.2	15	8.2	—	—	—	—	—	—	—	—
COD	75	41	75	41	—	—	—	—	—	—	—	—
TSS	10	5.4	10	5.4	—	—	—	—	—	—	—	—
Cu	.083	.042	.084	.042	—	—	—	—	—	—	—	—
Silicone fluid												
BOD5	6.0	3.3	1.9	1.0	1.6	1.2	.78	.57	1.0	0.57	1.0	.57
COD	30	17	9.5	5.0	8.5	6.3	4	3	8.5	4.7	8.5	4.7
TSS	4.0	2.2	1.25	.64	.44	.37	.21	.18	.26	.18	.26	.18
Cu	.034	.017	.010	.005	.011	.0055	.0052	.0026	.0052	.0026	.0052	.0026
+ Silicone grease												
BOD5	—	—	24	13.2		—	8.8	6.4	—	—	10.0	5.5
COD			120	66	—	—	45.5	33.4			82	45
TSS			16	8.8	—	—	2.3	2.0	—	—	2.5	1.7
Cu			.13	.067	—		.058	.029			.056	.026

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

August 17, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Proposed Amendments to the Effluent Limitations for the Grain Mills Manufacturing Industry

FROM : Effluent Standards and Water Quality Information Advisory Committee (member-Don Bloodgood)

TO : ES&WQIAC Office

GRAIN MILLING CATEGORY
Addition to Guidelines

General Information

The animal feed, breakfast cereal, and wheat starch industries all utilize products from the basic grain processing mills (covered in Phase I- Grain Mills) for raw materials.

There are over 8,100 plants covered in this Phase II segment of the Grain Mills Category. The animal feed industry has average annual sales of over $3 billion while cereal production and wheat starch represent together about $1.5 billion annually.

Animal feed and host cereal manufacturing plants utilize little or no process water and generate no process wastewater.

Most of the unit processes in ready-to-eat cereal plants do not generate process wastewaters. Most of the waste is generated within the clean-up operation. One plant discharges to a stream and the waste is untreated. Pretreatment is often practiced.

The wheat starch industry generates a large amount of concentrated wastewater. Six of the seven plants discharge their wastes to municipal systems. One of the six provides pretreatment.

Subcategories

Subpart G- Animal Feed Subcategory
Subpart H- Hot Cereal Subcategory
Subpart I- Ready-to-eat Cereal Subcategory
Subpart J- Wheat Starch and Gluten Subcategory

Raw Waste Loads

Subpart G- Very little wastewater, no process water
Subpart H- No process wastewater
Subpart I- 50,000 to 150,000 for small plants, 1,000,000 gal/pd 1000 to 3000 gal per 1000 $\#_s$ cereal for large plants. BODs are 400 to 2500 mg/l suspended solids are 100 to 400 mg/l
Subpart J- 75,000 to 250,000 *(see comment #1)
70,000 to 160,000 gpd with high BOD
The water use is 1.25 to 1.56 gal/lb of flour.
(1.19) average BOD is 196.6 lbs./1000#s.

Treatment Technologies

Subpart I- Dry cleaning by sweeping and vacuuming pretreatment-screening, skimming and settling. One plant provides biological pretreatment. Aerated lagoons with nutrient addition.

Subpart J- One preptreatment facility is in operation in the wheat starch industry. The steps are: heating to 85°F, anaerobic filters, chlorinatio Ammonia gas and sodium bicarbonate are added to stabilize the pH. Removals are: BOD 55%; COD 64%; Suspended Solids 45%.

Effluent Limitations

Avg. #s/1000#s

Subpart	BPT			BAT			N.S.		
	BOD	TSS	pH	BOD	TSS	pH	BOD	TSS	pH
G. Animal Feed	No Discharge			No Discharge			No Discharge		
H. Hot Cereal	"			"			"		
I. Ready-to-Eat	0.4	0.4	6-9	0.20	0.15	6-9	0.20	0.15	6-9
J. Wheat Starch	2.0	2.0	6-9	0.50	0.40	6-9	1.0	1.0	6-9

	Reciprocal of #s of flow per 1000#s	mg/l					
G.	----	---	---	---	---	---	---
H.	---	---	---	---	---	---	---
I.	119.904	48	48	24	18	24	18
J.	108.155	216	216	54	43	108	108

Comments

1. The raw waste flow data is different in different locations in the documents. See line 1652 and 1176, Tab. E.

2. See Table 7, Tab E, lines 1729 to 1751 figures are not as in text.

3. See line 2299 "dung aeration" Tab E.

4. The recommendation of deep bed filtration for BAT does not seem reasonable.

5. The preparation of guidelines for other than new sources seems to be an academic exercise because there are so few plants that discharge to receiving streams.

6. The usual average for 30 days and the max. day seem to be missing from this proposed document, Tab E.

7. Substantiation of treatability of both wheat starch and ready-to-eat cereals is weak.

8. It would seem that age and size of the wheat starch plants would have a definate impact on the raw waste loads, therefore, additional data must be generated to reach a definite conclusion.

9. Removals in waste treatment for the wheat starch and gluten subcategory of 98.9% for BPi and 99.7% for BAi are higher than can reasonably be expected.

10. Can it be demonstrated that it is fair to have the requirements for wheat starch effluents so much more strict than those promulgated for corn starch?

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December [illegible], 1974

MEMORANDUM

SUBJECT: Comments and Recommendations for the Grain Milling Category Subparts G, H, I and J Rule-Making Package for Promulgation.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

GRAIN MILLING CATEGORY
SUBPARTS G, H, I AND J
RULE-MAKING PACKAGE FOR PROMULGATION

General Information:

The Rule-Making Package for the proposed guideline was reviewed and reported on by ES&WQIAC member Don Bloodgood on August 17, 1974.

The document being reviewed includes a Tab [illegible] "Proposed Pretreatment Standards for, Existing Sources".

Subcategories:

There have been no changes in subcategories, G Animal Feed; H Hot Cereal; I Ready-to-eat Cereal; J Wheat Starch.

Effluent Limitations:

There were no changes in the BPT, BAT or NSPS limitations as presented previously in the Proposed Guidelines.

[illegible] Pretreatment Standards for New Sources are presented [illegible] the subcategories the constituent parameters for [illegible], BOD, and [illegible] limitation".

Development Document:

The Development Document was not available at the time of this review. The August 17, ES&WQIAC report contained comments and suggestions about the D.D.

Comments and Recommendations:

1. It is a mistake to use the words "no limitation" when stating the Pretreatment Standards for New Sources. It would be more clearly understood if the limitation was "no specific limitation". The same is the case for Pretreatment Standards for Existing Sources.

2. Review the ES&WQIAC report of August 17 for possible suggested changes to the D.D.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

August [illegible]

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-making Package for the Proposed Guidelines for the Addition of Four New Subcategories to the Asbestos Manufacturing Point-Source Category

FROM : Effluent Standards and Water Quality Information Advisory Committee (member-Bloodgood)

TO : ESWQIAC Office

ASBESTOS MANUFACTURING CATEGORY
Addition to Guidelines

General Information

There are approximately 90 plants which make up this segment of the Asbestos Manufacturing industry. Most of the plants are associated with the production of friction or sealing products. The major pollutants discharged by these plants are suspended solids and materials that have a COD. Less than 10% of the plants discharge to open waterways. The remaining plants are dry operations or discharge to municipal sewer systems.

Subcategories

Subpart H-Coating or Finishing of Asbestos Textiles Subcategory
Subpart I- Solvent Recovery Subcateogory
Subpart J- Vapor Absorption Subcategory
Subpart K- Wet Dust Collection Subcategory

Raw Waste Loads

Flow

H. Coating and Impregnating	200 gal/day
I. Solvent Recovery	10,000 "
J. Vapor Absorption	[illegible],000 gal/3 weeks with discharge over 1[illegible] hr. period
K. Wet Dust Collectors	50,000 to 150,000 gal/day

H. Coating and Impregnating, high in COD and suspended solids.
I. Solvent Recovery, BOD_5 1125 mg/l, COD 1930 mg/l, suspended solids mg/l, no asbestos fibers
J. Vapor Absorption, COD 1860 mg/l, pH above 9.5
K. Wet Dust Collectors, high suspended solids

Treatment Technologies

H. Complete elimination of wastewater discharges
I. Biological treatment, two stage granular activated carbon column
J. Complete elimination of waste waters
K. Primary settling, or elimination of wet scrubbers and replaced with bag houses.

Effluent Limitations

Subpart		BPT		BAT		N.S.	
H.		no discharge		no discharge		no discharge	
		mg/l		mg/l		mg/l	
I.	COD	100	50	10	5	10	5
	TSS	60	30	10	5	10	5
	pH	6-9		6-9		6-9	
J.		no discharge		no discharge		no discharge	
		mg/l					
K.	TSS	60	30	"		"	
	pH	6-9					

Comments

1. Basis of limitations is supported with adequate data.
2. It appears that in the long run, the concentration of constituents in the effluent is a more realistic way of expressing the limitations.
3. No discharge for Subpart K may result in a hardship for some small number of plants.

cc: EGD-Al Cywin
D/AA for Water Plann. & Stands.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December [illegible], 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for promulgation of the effluent limitations guidelines for existing sources and new source standards of performance and pretreatment and proposal of pretreatment standards for existing sources for the Asbestos Manufacturing Industry.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

ASBESTOS MANUFACTURING

General Information:

A review of the Rule-Making Package for the Proposed Guidelines was prepared on about August 12, 1974 and it was sent to the ES&WQIAC Office.

The sections of the industry covered at this time are textiles, friction materials, and sealing devices.

No mention of any input by ES&WQIAC unless it is considered as "Internal EPA".

Subcategories:

There has been no change in the subcategories and they are:

H - Coating or Finishing of Asbestos Textiles
I - Solvent Recovery
J - Vapor Absorption
K - Wet Dust Collection

Effluent Limitations:

The limitations have been changed from a concentration basis to weight per unit weight. There is no development document available to the reviewer so it is quite impossible to determine whether the concentration of the parameters has also been changed.

Pretreatment Standards for New Sources:

Subcategory	pH	COD	TSS
H	N.L.	N.L.	N.L.
I	N.L.	N.L.	N.L.
J	N.L.	N.L.	N.L.
K	N.L.	N.L.	N.L.

N.L. = No limitation

Pretreatment Standards for Existing Sources:

The proposed standards for pretreatment at existing sources are the same as for new sources.

Comments and Recommendations:

1. The changing of the basis for expressing limitations makes it very difficult to comprehend the degree of treatment being required.

2. The designation "no limitation" used in the standards for pretreatment at new and at existing sources is confusing and it should be changed.

3. How does one rationalize a designated COD limitation for pretreatment of wastes from existing sources in subcategories H and I of the Rubber Processing Industry, with the "no limitation" in this the Asbestos Manufacturing Industry?

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

September 18, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the promulgation of the final regulations for Cooling Water Intake Structures.

FROM : Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO : ES&WQIAC Office

Cooling Water Intake Structures

On Dec. 13, 1973 notice was published in the Federal Register that the EPA was proposing regulations concerning determinations to insure that the location, design, construction, and capacity of cooling water intake structures reflects the best technology available for minimizing adverse environmental impact. The ES&WQIAC has not been involved in the development of the guideline for this subject matter up until this time except as the Steam Electric Power Industry was and is involved.

Many comments were received by the ES&WQIAC and through workshops, hearings and data collection information was collected and transmitted to the Guidelines Division to guide them in the preparation of the guidelines.

The rule-making package indicates that, "The state-of-the-art of cooling water intake structure technology for minimizing adverse environmental impact is the case-by-case determination of specific technology to fit the specific environmental need at a particular site". It is further stated that, "At this time the best technology available for a particular case would be determined only after certain minimum factors had been considered".

Tab C the recommended final Regulations and Preamble states (a) "The factors set forth in the Development Document shall be used to determine that the location design, construction, and capacity of a cooling water intake structure of a point source subject to the standards established under the provisions of Sections 301, 304b or 306 of the Act reflect the best technology available for minimizing adverse environmental impact".

Comments

1. The case-by-case approach is the logical way to prepare permits and will be used in many cases in nearly all industries.

2. The Regulations and Preamble should actually list the "factors" refered to in the Development Document even if it has to be in outline form.

3. The "factors" in the Development Document are not specifically identified or if they are they are not prefaced by; "In the determination of the best technology available for a cooling water intake structure the following factors must be taken into consideration".

Deputy Assistant Administrator for
Water Planning and Standards

Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

August 30, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on Rule-Making Package For the Proposed Guidelines for the Amendment of the Guidelines by the Addition of Two New Subcategories To the Fertilizer Industry: Basic Fertilizer Chemicals and Formulated Fertilizers.

FROM : Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO : ES&WQIAC Office

Fertilizer Industry
Categories
Basic Fertilizer Chemicals and Formulated Fertilizers

General

The rule-making package was received by ES&WQIAC on August 16, 1974 and it included and "Action Memorandum" from the Assistant Administrator for Water and Hazardous Materials and these extracts that follow are approaching a summary review not unlike the document requested by our Committee. See "Action Memorandum" prepared 8/5/74, addressed to the Administrator, which follows this page.

Comments:

1. Subpart F and Subpart G both recommend no discharge for BPT and New Sources. It appears that the requirements are reasonable and can be attained.

2. The "no discharge" limitation for 1977 may be an unbearable burden on some plants because of the indicated flows for the present raw waste loads. See Raw Waste Flow list following Action Memorandum.

* * *

cc: Deputy Assistant Administrator for
Water Planning and Standards

Director, Effluent Guidelines Division

RAW WASTE FLOWS

SUBPART F:

Ammonium Sulfate Mfg.

A.	Contaminated Water	8000-8350 gal/ton
B.	Closed Loop Cooling Tower Water	0
C.	Crystal Wash Water	42-56
D.	Process Condensate	-
E.	Spills and Leaks	60-140

SUBPART G:

Mixed and Blend Fertilizer

A.	Contaminated Water	750-800
B.	Process Water	0-22
C.	Spills and Leaks	-
D.	Non Point Source Discharge	-

GUIDELINE LIMITATIONS

SUBPART F:

Ammonium Sulfate Production Subcategory

BPT	no discharge	N.S. no discharge
BAT	no discharge	

SUBPART G:

Mixed and Blend Fertilizer Production Subcategory

BPT	no discharge	N.S. no discharge
BAT	no discharge	

A. ISSUE

Proposal to amend the effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for the fertilizer manufacturing point source category by adding two new subcategories.

B. BACKGROUND

Description of Industry and Statutory Basis

For the purpose of developing guidelines, the fertilizer industry has been divided into two segments: Basic Fertilizer Chemicals and Formulated Fertilizers. The regulations for the Basic Fertilizer Chemicals segments were promulgated April 8, 1974 and include the following subcategories: phosphate, ammonia, urea, ammonium nitrate, and nitric acid.

The regulations for the Formulated Fertilizer products segment are being proposed at this time and include the remaining two fertilizer subcategories: ammonium sulfate and mixed and blend fertilizers.

The ammonium sulfate subcategory includes all those plants that produce ammonium sulfate by either the synthetic or the coke oven process. Ammonium sulfate is one of the older forms of nitrogen fertilizer and is still used in significant quantities (2,419,000 tons in 1972), but is the only nitrogen fertilizer with a history of gradual production decrease.

There are six synthetic and approximately 46 coke oven process plants, concentrated in the steel producing states, especially Ohio and Pennsylvania. All six synthetic plants meet the no discharge standard. The control technology necessary to meet [illegible] was found to be in current industrial use at 40 percent of the coke oven plants. pH and ammonia are the primary pollution parameters, but the raw waste load may also contain phenol, tar, and cyanide. Ammonium sulfate production uses an average of 4,000 to 8,350 gallons of cooling water per ton of product (16,680 to 34,800 l/kkg), which is noncontact water or fully recycled.

The second subcategory, mixed and blend fertilizers, is comprised of about 7,400 plants which manufacture NPK fertilizers in various forms. These plants are located in all parts of the country, but the greater concentration is in the Midwest and South.

Since the introduction of granular, high analysis straight and mixed fertilizer materials, there has been a phenomenal growth rate in this subcategory, particularly blend fertilizers. The consumption in the U.S. of total mixed fertilizers, both dry and liquid, was 20,963,000 tons in 1970. The 7,000 blends utilize dry process methods and discharge no process waste water pollutants. Approximately 66 percent of the mixed fertilizer units meet the no discharge requirement. Process water usage for a mixed fertilizer plant ranges from 750 to 822 gallons per ton of product (3,120 to 3.422 l/kkg). The significant pollution parameters are ammonia, nitrate, pH, phosphorus, organic nitrogen and fluoride.

C. MAJOR ISSUES IN THE DRAFT CONTRACTOR'S REPORT

Prior to this publication various agencies and groups were consulted and given an opportunity to participate in the development of the proposed effluent limitations guidelines and standards of performance for the fertilizer manufacturing category. The principal agencies and groups consulted along with those who responded with comments are listed in the preamble to the regulation (Tab B). As would be anticipated, the comments were highly variable and are also listed in the preamble to the regulation (Tab B). The major issues raised in the development of the proposed effluent limitations guidelines and standards of performance and the treatment of these issues herein are as follows:

(1) One commenter noted that diammonium phosphate equipment is sometimes used for producing NPK fertilizer and this operation was not described.

A few plants occasionally add potash to the diammonium phosphate granulator to produce an NPK fertilizer. Where this is done it is only a few weeks in a year and is a minor variation on the principal diammonium phosphate production. For guidelines purposes, this operation should be considered part of the Phase I fertilizer guidelines, which cover diammonium phosphate.

(2) The remark was made that data collection from only eight mixed and blend fertilizer plants does not provide the broad perspective needed. It was suggested that at least 15 to 20 plants be considered as a minimum in studying these processes.

This industry is made up of a large number of plants and the approach to study necessarily required selection of exemplary plants that properly represent the operation of the total group. The contractor's extensive knowledge of this industry means that many plants were considered in the selection of exemplary plants for study and that number and types of plants selected gives proper coverage.

(3) The inclusion of NPK plants in only two states, Alabama and Illinois, was objected to as being narrow in scope. The commenter felt that this precluded consideration of the many variations practiced in other states.

It was necessary to select plants for study from the large number in the industry. NPK plants use a number of different raw materials and selection was made to cover this variability. It is believed the selection of plants from the two states adequately covers the industry in a way that has lead to valid conclusions for the entire subcategory.

(4) One commenter stated that the scrubbing system depicted for mixed fertilizer plants is not representative of the majority of plants. Scrubber systems for mixed fertilizers include ammoniator off-gases in addition to the dryer and cooler off-gases, in some cases as separate equipment.

Some modification in the development document has been made in response to this comment. However, the use of more than one scrubber is viewed as a manufacturer's option that does not [illegible] the validity of the single scrubber description.

(5) A commenter questioned the [illegible] system shown for blend fertilizer plants. Some plants have dust collection systems on point sources, but not systems designed to collect all emissions from the total plant.

Dust collectors for dust emission control may be a single unit for the whole plant or several units at the points where dusting occurs.

(6) The Fertilizer Institute believes that the discharge limitations recommended by the study contractor are attainable by [illegible] for most of the installations under the applicable subcategories.

(7) It was stated that the process descriptions given for blend fertilizers should show that batch mixers usually are of two types: a cement-type mixer, capable of 15 to 30 tons per hour, and an auger-type with four or five tons per hour.

This will be added to the development document.

(8) One commenter suggested including [illegible] exhaust gas in the description of process equipment with an effluent [illegible]

This suggestion has been incorporated in the development document.

(9) It was recommended that the cost of electric energy should be 15 to 20 mills per KWH instead of the 10 mill rate.

The 10 mill rate was based on the 1971 rate in an area of moderately priced electricity. In the economic impact studies, the base information is adjusted.

(10) One reviewer noted that the estimated investment costs in the report are very high for mixed fertilizer effluent control and also for the blend plant air control system.

The contractor is highly qualified in estimating costs and his estimates of these costs are believed to be good.

(16) One reviewer criticized the lack of reference citations in the text as well as lack of justifying detail.

Reference citations and justifying detail has been increased in the development document.

(17) It was noted that continuous, long-term operating life was not cited for plants referenced as capable of achieving no discharge of process waste water.

Operating life with no discharge for these plants is not limited. Solid waste is generated from mixed fertilizer operations, but is handled by proper solid waste disposal.

(18) One commenter stated that wet scrubbers could be used in blend plants associated with other production facilities.

Use of wet scrubbers for dust control in blend plants is not a good alternative. By transfer of technology wet scrubber wastes from blend plants could be treated for recycle but it would be done at a significant economic disadvantage. Wet scrubbing of wastes and discharge of untreated scrubber effluent is not a satisfactory alternate.

(19) The Office of Air Quality Planning and Standards concurred that dry collection is the current and correct control for air pollutants from blend operations.'

EXCERPTS FROM 8/5/74 Memo to R. Train

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

[illegible]

MEMORANDUM

SUBJECT: Comments and Recommendations on the Published Proposed Rules for the Fertilizer Manufacturing Point Source Category, Subcategories F & G.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

FERTILIZER MANUFACTURING
Subcategories F & G

A report was prepared on the Rule-Making Package dated Aug. [illegible], 1974. Reference to it is suggested.

Subcategories:

F. Ammonium Sulfate
G. Mixed and Blend Fertilizer

Effluent Limitations:

"No discharge" is proposed for Both Subcategories, for BPT, BAT and New Sources.

Comments and Recommendations:

1. The Development Document was not available [illegible] that it was not needed.

2. It would be advisable to provide a definition of "exemplary plants" as used in the proposed rules, see item [illegible].

3. The "no discharge" limitations for 1977 are strict and they should be applied judiciously.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

MEMORANDUM

SUBJECT: Comments and Recommendations on draft of Promulgated Guidelines for Fertilizer Manufacturing and proposed regulations on Pretreatment Standards for Existing Sources for the formulated fertilizer segment.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

FERTILIZER MANUFACTURING
SUBCATEGORIES F & G

General Information:

A review of the proposed guidelines was made on about November 7, 1974.

Subcategories:

F. Ammonium Sulfate
G. Mixed and Blended Fertilizer

Effluent Limitations:

The limitations are "no discharge" for BPT, BAT and New Sources for both subcategories.

Changes:

The following statement was added to Subpart F-Ammonium Sulfate:

"The provisions of this subpart do not apply to ammonium sulfate produced as a by-product of caprolactum production".

Proposed Pretreatment Standards for Existing Sources:

Subcategory	pH	BOD_5	TSS	Ammonia(N)	Nitrate(N)	Total Phosphious (P)
F	N.L.	N.L.	N.L.	30 mg/l	-	-
G	N.L.	N.L.	N.L.	30	30	35

N.L. = No limitation

Comments and Recommendations:

1. Is the statement in the Action Memorandum under F - Pretreatment for Existing Sources "Ammonia and nitrate pass through a municipal treatment system essentially unchanged" and "Phosphorus is reduced by only a small percentage unless....," precisely correct?

2. Are the limitations on ammonia, nitrate, and phosphorus based on factual data, theory or practical observation?

3. The term "no limitation" does not describe precisely what is believed to be the intended meaning.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

September [illegible]

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the Proposed Guidelines for the Inorganic Chemicals Manufacturing. This is an amendment that adds forty-one new subcategories to the original Group I, Phase I document 415.

FROM : Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO : ES&WQIAC Office

Inorganic Chemicals Manufacturing
Significant Inorganic Chemicals

General Information:

This proposed guideline is to cover inorganic chemicals products produced in plants with capacities of 1,000,000 lbs. or more per year. There are approximately 190 major plants in the significant inorganic chemicals industry and 320 plants total.

Subcategories:

W	Aluminum Fluoride
X	Aluminum Chloride
Y	Ammonium Hydroxide
Z	Barium Carbonate
AA	Borax
AB	Boric Acid
AC	Bromine
AD	Calcium Carbonate
AE	Calcium Hydroxide
AF	Carbon Dioxide
AG	Carbon Monoxide
AH	Chrome Pigments
AI	Chromic Acid
AJ	Copper Sulfate

AK	Cuprous Oxide
AL	Ferric Chloride
AM	Ferrous Sulfate
AN	Flourine
AO	Hydrogen
AP	Hydrogen Cyanide
AQ	Iodine
AR	Lead Monoxide
AS	Lithium Carbonate
AT	Manganese Sulfate
AU	Nickel Sulfate
AV	Strong Nitric Acid
AW	Oxygen and Nitrogen
AX	Potassium Chloride
AY	Potassium Iodide
AZ	Potassium Permanganate
BA	Silver Nitrate
BB	Sodium Bisulfite
BC	Sodium Fluoride
BD	Sodium Hydrosulfide
BE	Sodium Hydrosulfite
BF	Sodium Silicofluoride
BG	Sodium Thiosulfate
BH	Stannic Oxide
BI	Sulfur Dioxide
BJ	Zinc Oxide
BK	Zinc Sulfate

Raw Waste Loads

The raw waste loads for each of the subcategories are given in the Development Document in some detail. The water use by plants in the same subcategory is reported to be greatly different.

Treatment Technologies

The treatment processes used at each of the plants visited are given along with the results being attained.

Effluent Limitations

SUMMARY

Inorganic Chemicals Manufacturing
Signigicant Organic Chemicals

Constituent Subcategory	BPT Gallons per ton	BPT Pounds per ton	BPT mg/l	BPT No Discharge	BAT Gallons per ton	BAT Pounds per ton	BAT mg/l	BAT No Discharge
W Aluminum Fluoride	4963							X
TSS		.86	21					
Fluoride		.68	16					
X Aluminum Chloride (Sodium Carbonate)	43621							X
Ammonia		8.8	24					
Y Ammonium Hydroxide	830							X
Ammonia		10.0	1444					
Z Barium Carbonate	9120				4320			
TSS		1.8	24			.54	15	
Barium		1.2	16			.82	23	
Sulfide		1.0	13			.42	12	
Iron		0.6	8			.3	8	
Sulfide		0.4	5			.08	2	
AA Borax				X				X
AB Boric Acid	623				673			
TSS		.14	25			.14	25	
Arsenic		.0072	1.3			.0072	1.3	
AC Bromine				X				X
AD Calcium Carbonate	2690				2690			
TSS		[illegible]	25			.34	15	
AE Calcium Hydroxide				X				X

SUMMARY

Inorganic Chemicals Manufacturing
Signigicant Organic Chemicals

Constituent Subcategory	BPT Gallons per ton	BPT Pounds per ton	BPT mg/l	BPT No Discharge	BAT Gallons per ton	BAT Pounds per ton	BAT mg/l	BAT No Discharge
AF Carbon Dioxide	46							
TSS		.0038	10					X
Manganese		.00026	.7					
Ammonia		.0038	10					
AG Carbon Monoxide	1480							
TSS		.12	10					X
COD		.50	41					
AH Chrome Pigments	16,100				16,100			
TSS		3.4	25			2.0	15	
Total Chromium		0.7	5			.14	1	
Lead		0.5	3.7			.2	1.5	
Zinc		0.27*	.54*			0.27*	.54*	
Oxidizable Cyanide		.004	.03			.004	.03	
Total Cyanide		.01	.07			.1	.7	
Iron		1.8	13.3			.54	4	
AI Chromic Acid				X				X
AJ Copper Sulfate								
(pure raw material)	1271							
Copper		.0004	.04					X
(recovery process)	220							
TSS		.046	25					
Copper		.001	.55					X
Nickel		.001	.55					
Selenium		.001	.55					

*zinc yellows fraction

*zinc yellows fraction

SUMMARY

Inorganic Chemicals Manufacturing
Signigicant Organic Chemicals

	BPT				BAT			
Constituent Subcategory–	**Gallons per ton**	**Pounds per ton**	**mg/l**	**No Discharge**	**Gallons per ton**	**Pounds per ton**	**mg/l**	**No Discharge**
AK Cuprous Oxide	7460							X
TSS		.008	.13					
Copper		.00008	.00128					
AL Ferric Chloride				X				X
AM Ferrous Sulfate				X				X
AN Flourine	36							X
TSS		.008	27					
Fluorine		.006	20					
AO Hydrogen (refinery by-product)				X				X
AP Hydrogen Cyanide (acrylonitrile by-product)				X				X
(Andrussow process)	12000							
TSS		2.4	24			2.4	24	
Oxidizable Cyanide		.003	.03			.003	.03	
Total Cyanide		.01	.1			.100	1.0	
BOD		3.6	36			3.6	36	
Ammonia		0.36	3.6			.36	3.6	
AQ Iodine				X				X
AR Lead Monoxide				X				X
AS Lithium Carbonate	8600				8600			
TSS		1.8	25			1.08	15	

Inorganic Chemicals Manufacturing
Signigicant Organic Chemicals

Constituent Subcategory	BPT Gallons per ton	BPT Pounds per ton	BPT mg/l	BPT No Discharge	BAT Gallons per ton	BAT Pounds per ton	BAT mg/l	BAT No Discharge
AT Manganese Sulfate	720							
TSS		.15	25					
Manganese		.162	10					
BOD		.30	50					X
AU Nickel Sulfate	1060							
TSS		.22	25					
Nickel		.026	3					X
AV Strong Nitric Acid	290				290			
TSS		.06	25			.04	17	
Nitrate		4.6	1902			1.2	496	
AW Nitrogen and Oxygen				X				X
AX Potassium Chloride				X				X
AY Potassium Iodide	280							
TSS		.06	25					
Barium		.006	216					
Iron		.01	4.2					X
Sulfide		.01	4.2					
Iodate		none						
AZ Potassium Permanganate	8000							
TSS		1.7	25					
Manganese		1.0	15					X
BA Silver Nitrate	350							
TSS		.04	14					
Silver		.006	2					X

SUMMARY

Inorganic Chemicals Manufacturing
Signigicant Organic Chemicals

Constituent Subcategory	BPT Gallons per ton	BPT Pounds per ton	BPT mg/l	BPT No Discharge	BAT Gallons per ton	BAT Pounds per ton	BAT mg/l	BAT No Discharge
[illegible]	[illegible]	[illegible]	27 120	X				
[illegible]				X				X
[illegible]		[illegible]	25 13					X
[illegible]			25 289 [illegible]					X
[illegible]			[illegible] 10					X
[illegible]								X
[illegible]								X
[illegible]			[illegible]		10,000	1.2		

Inorganic Chemicals Manufacturing
Signigicant Organic Chemicals

Constituent Subcategory –	BPT Gallons per ton	BPT Pounds per ton	BPT mg/l	BPT No Discharge	BAT Gallons per ton	BAT Pounds per ton	BAT mg/l	BAT No Discharge
BJ Zinc Oxide								
(dry process)				X				X
(wet process)	2760							
TSS		.6	26					X
Zinc		.16	7					
Barium		.08	3.4					
Lead		.04	1.7					X
Arsenic		.016	.7					
Sulfide		.016	.7					
BK Zinc Sulfate				X				

New Source Controls

Sulfur Dioxide	10,000	Gallons per ton	
TSS	1.2	pounds per ton	.4 mg/l
COD	.036	pounds per ton	.43 mg/l

All others "no discharge" or same as BAT

Comments:

1. There are marked differences in the flows registered for plants considered in the same subcategories. This raises the question, should plants with wide flow differences be considered in the same subcategory?

2. Some Guideline Development Documents show in tables the raw-waste loads and flows representative of the subcategory along with the permitted discharges in both pounds per unit of product and [illegible] information should be in all Development Documents. Many [illegible] officers have the indicated information and apparently use it [illegible] considerations.

3. The permissive discharge of ammonia in the production of ammonium hydroxide seems extremely high.

4. The permissive discharge of barium (concentration) for barium carbonate BAT is higher than for BPT. Is this reasonable?

5. The calculation for zinc limitations for chrome pigments is not clearly shown in the Development Document.

6. Why should there be a limit of .01 pounds per ton for total cyanide in BPT of chrome pigments and 0.1 pounds per ton for BAT?

7. Why should there be a copper limitation of .0[illegible] mg/l for copper sulfate manufacture from pure raw materials and [illegible] mg/l for copper sulfate production by the recovery process?

8. Why is there such a stringent limitation for copper in the production of cuprous oxide?

9. Should it be possible to discharge wastes containing [illegible] mg/l of flourine? (See AN Flourine)

10. Why is the permissive discharge for total cyanide in BAT for hydrogen cyanide be higher than for BPT?

11. Can the limitation on nickel of 0.55 mg/l in copper sulfate production be defended when the limitation is 1 mg/l for nickel sulfate production?

12. Is there inequity in having a limitation for manganese of [illegible] mg/l carbon dioxide production when 10 mg/l is permitted in manganese sulfate production and 15 mg/l is permitted in potassium permanganate production?

13. The permissive discharges of nitrate form the strong nitric acid production seem extremely high for both BPT and BAT.

14. Why permit 19 mg/l of zinc in the production of sodium hydrosulfite and only 7 mg/l from the production of zinc oxide production?

15. The BPT limitation of "no discharge" for a plant now discharging liquid wastes is questioned.

16. The BAT limitation of "no discharge" for a plant having numerical limitations on constituents for BPT, is questioned.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

[illegible]
[illegible]

September

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the Proposed Guidelines amendments for 3 new subcategories to the Phosphate Manufacturing point source category.

FROM : Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO : ESWQIAC Office

Phosphate Manufacturing
Phosphorus Derived Chemicals Amendments

General:

The industry is characterized by a relatively small number of plants, only one plant exists for the sodium phosphate subcategory. Some of the plants did not cooperate with the study because of trade secret factors. There are 4 defluorinated phosphate rock plants. There are 10 defluorinated phosphoric acid plants. The greatest concentration of plants is in Florida.

The greatest treatment problems occur in regions of excessive rainfall, and at sites without land available for lagoons.

There are three acid plants without basic treatment facilities and they may be forced to close by 1977, one of the plants is thought to have a negative cash flow as of 1973. The three plants account for 17% of the industry production.

Subcategories:

D. Defluorinated Phosphate Rock
E. Defluorinated Phosphoric Acid
F. Sodium Phosphates

Raw Waste Loads:

Defluorinated Phosphate Rock

Flow: 11,000 gal/ton

Total Phosphorus (P)	600	mg/l
Fluoride (F)	1930	mg/l
TSS	16	mg/l
pH	1.65	mg/l

Defluorinated Phosphoric Acid

Flow: Vacuum Type Evaporation 16,900 gal/ton
Submerged Combuston 4,320 gal/ton

Total Phosphorus (P)	5590	mg/l
Fluoride (F)	967	mg/l
TSS	30	mg/l
pH	1.29	mg/l

Sodium Phosphates

Flow: 1830 to 2400 gal/ton

Total Phosphorus (P)	250	mg/l
Fluoride (F)	15	mg/l
TSS	460	mg/l
pH	7.8	mg/l

Treatment Processes:

For waste waters discharged, normally two stages of liming or neutralization are necessary to effect an efficient removal of the fluoride and phosphate contaminants.

The guidelines show ponding with the release of excessive storm water as the means of disposal.

Effluent Limitations:

Subcategory

Constituent

D. Defluorinated Phosphate Rock subject to special provisions that follow there shall be no discharge of process water pollutants into navigable waters.

(b) "A process waste water impoundment which is designed, constructed and operated so as to contain the precipitation from the 10 year, 24 hour rainfall event as established by the National Climatic Center, National Oceanic and Atmospheric Administration, for the area in which such impoundment is located may discharge that volume of process waste water which is equivalent to the volume of precipitation that falls within the impoundment in excess of that attributable to the 10 year, 24 hour rainfall event, when that event occurs."

(c) "During any calendar month there may be discharged from a process waste water impoundment either a volume of process wastewater equal to the difference between the precipitation for that month that falls within the impoundment and evaporation within the impoundment for that month, or, if greater a volume of process waste water equal to the difference between the mean precipitation for that month that falls within the impoundment and the mean evaporation for that month as established by the National CCNO&AA, for the area in which such impoundment is located or as otherwise determined if no monthly data have been established by the NCCNO&AA."

(d) Any process water discharged pursuant to the above paragraphs shall comply with the following requirements:

Effluent Characteristic	BPT mg/l Max. Day	Avg.	
Total Phosphorus (P)	70	35	BAT and New Sources same as BPT except for 25 yr. 24 hr. rainfall event
Fluoride	30	15	
TSS	50	25	
pH	8.0 to 9.5		

E. Defluorinated Phosphoric Acid

Same as paragraphs b, c & d under "Defluorinated Phosphate Rock and the constituent limits are the same. BAT and New Sources limitations are the same as for BPT.

F. Sodium Phosphate - 1830 to 2400 gal/ton [illegible]

Effluent Characteristic	BPT Max. Day #s/1000#s	Avg.	Avg. mg/l	BAT & New Source Max. Day #s/1000#s	Avg.	Avg. mg/l
Total Phosphorus (P)	.80	.40	45	[illegible]	.28	32
Fluoride	.30	.15	1[illegible]	.21	.11	12.[illegible]
TSS	.50	.25	28	.35	.18	20
pH	8 to 9.5			8.0 to 9.5		

The calculated percent removals are shown in the following table.

PERCENT REMOVALS

Subcategory	Total Phosphorus BPT	Total Phosphorus BAT	Fluorine BPT	Fluorine BAT	TSS BPT	TSS BAT
Defluorinated Phosphate Rock	94.2	94.2	99.2	99.2	-[illegible]	-[illegible]
Defluorinated Phosphoric Acid	99.4	99.4	98.4	98.4	1[illegible]	[illegible]
Sodium Phosphate	82.0	87.2	-13.3	[illegible]	93.9	[illegible]

Comments and Suggestions:

1. Figure III - 2 Defluorinated Phosphoric Acid Plant Locations, shows 10 locations, the preamble at line 465 says "...eight of eleven...".

2. Development Document line 914 should probably read "...of that attributable...".

3. Development Document line 1175 should show gal./ton (11,000).

4. Why is it advisable to show a negative removal for BAT for fluorine in sodium phosphate wastes?

5. Why is it advisable to show negative removals for TSS for Defluorinated Phosphate Rock for both BPT and BAT?

6. What is the basis for allowing a pH of 9.5 when so many of the effluents are limited to an upper limit of 9.0?

7. Any limitations that disturb the economic balance should be made with extreme care.

8. The Development Document and/or the Guidelines should show a summary of raw waste volumes and concentrations along with the effluent flows and constituent concentrations.

9. An indication of the effectiveness of treatment expected, expressed in percent removals should accompany the Guidelines and/or the Development Documents.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

January 10, [illegible]

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for promulgation of the effluent limitation guidelines for existing sources and standards of performance and pretreatment standards for the Phosphorous Derived Chemicals of the Phosphate Manufacturing Industry.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

PHOSPHOROUS DERIVED CHEMICALS
(Interim Final Regulation)

General Information:

An ES&WQIAC report was prepared on about September 24, 1974 on the Rule-Making Package for the Proposed Guidelines. Reference to this report is suggested if the comments in it were not considered prior to the publication of the Proposed Guidelines.

It appears that this document being considered offers amendments for pretreatment standards for existing sources, standards of performance for new sources, and pretreatment standards for new sources for Subcategories D, E, and F.

Subcategories:

D. - Defluorinated Phosphate Rock
E. - Defluorinated Phosphoric Acid
F. - Sodium Phosphates

Limitations:

Subcategory D:

Pretreatment Standards for Existing Sources

The volume of wastewater that may be discharged is established by Section 422.42. (Not Available)

	Max. Day (mg/l)	30 Day Avg.
BOD_5	no limitation	
TSS	no limitation	
pH	no limitation	
Total Phosphorous	70	35
Fluoride	30	15

Standards of Performance for New Sources

	Max. Day (mg/l)	30 Day Avg.
Total Phosphorous (P)	70	35
Fluoride	30	15
TSS	50	25
pH	6.0 to 9.0	

Pretreatment Standards for New Sources

	Max. Day (mg/l)	30 Day Avg.
BOD_5	no limitation	
TSS	no limitation	
pH	no limitation	
Total Phosphorous	70	35
Fluoride	30	15

Subcategory E:

Pretreatment Standards for Existing Sources

	Max. Day (mg/l)	30 Day Avg.
BOD_5	no limitation	
TSS	no limitation	
pH	no limitation	
Total Phosphorous	70	35
Fluoride	30	15

Standards of Performance for New Sources

	Max. Day (mg/l)	30 Day Avg.
Total Phosphorous	70	35
Fluoride	30	15
TSS	50	25
pH	6.0 to 9.0	

Pretreatment Standards for New Sources

	Max. Day (mg/l)	30 Day Avg.
BOD_5	no limitation	
TSS	no limitation	
pH	no limitation	
Total Phosphorous	70	35
Fluoride	30	15

Subcategory F:

Pretreatment Standards for Existing Sources

	Max. Day (kg/kkg)	30 Day Avg.
BOD_5	no limitation	
TSS	no limitation	
pH	no limitation	
Total Phosphorous	0.80	0.40
Fluoride	0.30	0.15

Standards of Performance for New Sources

	Max. Day (kg/kkg)	30 Day Avg.
TSS	0.35	0.18
Total Phosphorous (P)	0.56	0.28
Fluoride	0.21	0.11
pH	6.0 to 9.0	

Pretreatment Standards for New Sources

	Max. Day (kg/kkg)	30 Day Avg.
BOD_5	no limitation	
TSS	no limitation	
pH	no limitation	
Total Phosphorous	0.80	.40
Fluoride	0.30	0.15

Comments and Suggestions:

1. The indication "no limitation" is misleading and should probably be changed to a wording that does not indicate "anything" can go down the sewer.

2. A specific limitation (pounds or mg/1) of fluoride to a municipal sewer seems to eliminate the possibility of discharging a waste treatment plant effluent with a fluoride concentration accepted as a drinking water standard for fluoride.

3. The maximum day limitation of twice the 30 day average should not become a fixed figure that appears in many guidelines.

4. The Economic Impact Report leaves this reviewer with the impression that there will probably be an economic impact upon a relatively small industry. An industry that is operating on a shaky profit margine. It should be remembered that any controls that influence the "Balace Payments' in a small industry may have a significant impact when and if the controls have a similar impact on all manufacturing. We can stand no out flow of money from our country.

5. It is gratifying to observe the clearness of the presentation of the raw waste loads and volumes of waste in the Development Document.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

September 26, 1975

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the Proposed Guidelines for the Nonferrous Industry, Phase II.

FROM : Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO : ES&WQIAC Office

Nonferrous Industry

General Information:

The guidelines being considered at this time are amendments to the standards of performance for the Nonferrous Industry and cover copper, lead and zinc segments.

The primary copper smelting subcategory is comprised of 15 facilities, 11 of which are integrated with copper mining and/or milling operations.

There are seven electrolytic copper refineries.

There are 44 plants classified as secondary copper smelters and they include 37 brass and bronze ingot producers, four cathode copper producers, and three facilities recovering fire-refined copper from scrap.

The primary lead subcategory is comprised of six currently operated facilities. Four of these operations smelt and refine at the site, and two smelt and ship lead bullion to one refinery.

The primary zinc subcategory consists of six plants.

Subcategories:

D - Primary Copper
E - Primary Copper Refining
F - Secondary Copper
G - Primary Lead
H - Primary Zinc

Raw Waste Loads:

The determination of raw waste loads form the information included in the proposal and development documents is very difficult if not impossible. There is a great deal of extraneous material presented all of which will confuse the permit writer.

Treatment Processes:

Primary Copper Smelting - Impoundment of waste waters except, "During any calendar month there may be discharged from a process waste water impoundment either a volume of process waste water equal to the difference between the precipitation for that month that falls within the impoundment and the evaporation within the impoundment for that month, or, if greater, a volume of process waste water equal to the difference between the mean precipitation for that month that falls within the impoundment and the mean evaporation for that month as established by the National Climatic Center, National Oceanic and Atmospheric Administration, for the area in which such impoundment is located or as otherwise adtermined if no monthly data have been established by the National Climatic Center".

Effluent Limitations:

Subcategory

Constituent

	BPT mg/l		BAT	New Sources
	Max. Day	Avg. Mo.		
D - Primary Copper Smelting*				
TSS	50	25	Same as BPT	
As	20	10		
Cd	.5	.25		
Fe	.5	.25		
Pb	1.0	.5		
Ni	0.5	.25		
Se	10	5		
Zn	10	5		
pH	7.0-10.5			
E - Primary Copper Refining*				
TSS	50	25	Same as BPT	
As	20	10		
Cu	.5	.25		
Se	10	5		
Zn	10	5		
Oil & Grease	20	10		
pH	7.0-10.5			

*See first paragraph under Treatment Processes.

"The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which maybe discharged by a point source subject to the provisions of this subpart, which is geographically located in an area of net rainfall, after application of the best practical control technology currently available."

	lbs./1000 #s BPT Max. Day	lbs./1000 #s BPT Avg. Mo.	lbs./1000 #s BAT Max. Day	lbs./1000 #s BAT Avg. Mo.
TSS	0.10	.05	.01	.005
As (live-stock 0.2 mg/l)	.04	.02	.004	.002
Zn	.04	.02	.004	.002
Se	.02	.01	.002	.001
Cu	.001	.0005	.0001	.00005
Oil & Grease	.04	.02	.004	.002
pH	7.0-10.0		7.0-10.0	

New Sources same as BAT

F - Secondary Copper*

	BPT mg/l Max. Day	BPT mg/l Avg. Mo.	BAT	New Sources
TSS	50	25	Same as BPT	
Cu	0.5	0.25		
Zn	10	5		
Oil & Grease	20	10		
pH	7.0-10.5			

G - Primary Lead*

	Max. Day	Avg. Mo.	BAT	New Sources
TSS	50	25	Same as BPT	
Cd	1.0	0.5		
Pb	1.0	0.5		
Zn	10	5		
pH	7.0-10.5			

	lbs./1000 #s** Max. Day	lbs./1000 #s** Avg. Mo.	BAT	New Sources
TSS	.042	.021	Same as BPT	
Cd	.0008	.0004		
Pb	.0008	.0004		
Hg	1.6×10^{-6}	8×10^{-7}		
Zn	.008	.004		
pH	7.0-10.0			

*See first paragraph under Treatment Processes.

**Limitations of pollutants that can be discharged from plants geographically located in an area of net rainfall after application of BPT.

H - Primary Zinc 1217 gal/1000 #s

	BPT lbs./1000 #s		BPT mg/l	BAT lbs./1000 #s		BAT mg/l
	Max. Day	Avg. Mo.	Avg. Mo.	Max. Day	Avg. Mo.	Avg. Mo.
TSS	.42	.21	21	.28	.14	14
As	$1.6x10^{-3}$	$8x10^{-4}$	.079	$1.1x10^{-3}$	$5.4x10^{-4}$	.053
Cd	.008	.004	.39	$5.4x10^{-3}$	$2.7x10^{-3}$	.27
Hg	$1.6x10^{-6}$	$8x10^{-6}$	.00079	$1.0x10^{-6}$	$5x10^{-6}$	.00049
Se	0.08	.04	4	.054	.027	26.6
Zn	0.08	.04	4	.054	.027	26.6
pH	7.0-10.0			7.0-10.0		

New Sources (same as BAT)

Comments and Suggestions:

1. Remove miscellaneous material from the document when it is not helpful in writing permits.

2. Why should the TSS for Primary Zinc be less than for the other subcategories?

3. In the Summary of Limitations attached why are the limits for arsenic so high for Copper Smelting and Copper Refining? Note limits on livestock and aquatic life.

4. The limitations for cadmium do not meet the requirement for aquatic life. In other constituent limitations the 0.1 TLm 96 hr. basis is used. Why the difference?

5. There seems to be no good reason for including an iron limitation for Primary Copper Smelting when there is no limitation for the other subcategories.

6. The mercury limitation for Primary Zinc appears to be above the limit recommended for aquatic life. Why?

7. The nickle limitation should be based on the 0.1 TLm 96 hr. tolerance limit or some other toxicity limitation.

8. Why are the lead limitations above the recommended limits for aquatic life and livestock?

9. Why is the limitation for zinc in the Primary Zinc subcategory a lower figure that for the other subcategories in this group?

cc: Director, Effluent Guidelines [illegible]

SUMMARY
of
BPT LIMITATIONS

mg/l

	Primary Copper Smelting	Primary Copper Refining	Secondary Copper	Primary Lead	Primary Zinc	Aquatic Life	Live Stock
TSS	25	25	25	25	21	-	-
As	10	10	-	-	.029	-	0.2
Cd	.25	.25	-	0.5	.39	.003	50
Cu	-	-	.25	-	-	.1xLC50 96 hr.	.5
Fe	.25	-	-	-	-	-	-
Hg	-	-	-	-	.00079	.0002	.001
Ni	.25	-	-	-	-	.02xLC50 96 hr.	-
Pb	[illegible]	-	-	0.5	-	.01	.1
Se	[illegible]	[illegible]	-	-	[illegible]	-	.05
Zn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]x LC50 96 hr.	25
Oil & Grease	-	10	10	-	-		

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE
December 9, 1974

MEMORANDUM

SUBJECT: [illegible] Economic Impact of the Rule-Making Package for the Proposed Regulations for the Nonferrous Industry. It was not available for review when the Rule-Making Package review report was made on September 12, 1974.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don F. Bloodgood

TO: ES&WQIAC Office

NONFERROUS INDUSTRY
SUBCATEGORIES D,E,F,G & [illegible]
TAB [illegible]

General Information:

The Economic Impact Report says that a general conclusion is that the proposed guidelines will have little economic impact on the nonferrous metals industry.

For the industry as a whole no closures or curtailments in output or employment are anticipated as a consequence of guidelines implementation.

Comments and Recommendations:

1. A reading of the report leaves the impression that the economic impact is minimal in meeting the BPT and BAT guidelines.

2. ES&WQIAC members with knowledge about economic matters should be requested to provide input in regard to the report herein discussed.

3. The Economic Impact Report does not alter any of the comments made previsouly in the Rule-Making Package review of September 12, 1974.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

January , 1975

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the interim final Effluent Limitations Guidelines for the Nonferrous Industry.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

NONFERROUS INDUSTRY

General Information:

On about September 23, 1974 an ES&WQIAC review of the Rule-Making Package of the Proposed Guidelines was prepared. It covered the Subcategories D, E, F, G and H.

The development document for the primary copper industry has been rewritten and it now places most of its emphasis upon recycle and reuse of process water.

It appears that comments made by responders to the Contractor's Report and the Proposed Guidelines have been given serious consideration by the Guidelines Division and changes have been made in many instances.

Effluent Limitations:

Subcategory D. Primary Copper Smelting

The same limitations as given in the Proposed Guidelines except for the removal of iron and nickel and changing the pH limitations from 7.0 to 10.5 to the more standard limitations of 6.0 to 9.0.

Subcategory E. Primary Copper Refining

(a) No change except for the pH range.
(b) The zinc limitation has been halved for BPT and BAT and the pH range has been changed to the 6.0 to 9.0 limits.

Subcategory F. Secondary Copper

The pH limitation has been changed from the proposed 7.5 to 10.0 to the 6.0 to 9.0 common limitations.

Subcategory G. Primary Lead
(a) No change except for the pH range.
(b) Mercury has been removed from the list of controlled parameters and the pH range has been changed to the 6.0 to 9.0 figures.

Subcategory H. Primary Zinc

Mercury has been removed from the list of parameters controlled and the pH has been changed to the 6.0 to 9.0 range.

The Pretreatment Standards for Existing Sources, New Source Perf. and Limitations and Pretreatment Standards for New Sources are included in the documents being reviewed, and for reference they have been included in this report.

Subcategory H. Pretreatment Standards Existing Sources

TSS	No limitation
pH	No limitation
As	10 mg/l
Cu	.25 mg/l
Pb	.5 mg/l
Cd	.5 mg/l
Hg	[illegible] mg/l
Zn	[illegible] mg/l

New Source Standards (Same as BPT and BAT)

Pretreatment Standards New Sources (Same as for Existing Sources)

Subcategory I. Pretreatment for Existing Sources

	Max. Day		[illegible]	
Oil & Grease	.04		.02	[illegible]
As	.04		.02	
Zn	.01		[illegible]	
Se	.02		.01	
Cd	.001		.0005	
TSS		No limitation		

	Max. Day	30 Day Ave.
pH	no limitation	
BOD_5	no limitation	

Standards of Performance New Sources
(a) (Same as BPT and BAT)
(b) (Same as BAT)

Pretreatment Standards New Sources (Same as for Existing Sources)

Subcategory F. Pretreatment Standards for Existing Sources

TSS	no limitation
pH	no limitation
BOD_5	no limitation
Oil & Grease	100 mg/l
Cu	0.25 mg/l
Zn	5 mg/l

Standards of Performance New Sources (Same as BPT and BAT)

Pretreatment Standards New Sources (Same as for Existing Sources)

Subcategory G. Pretreatment Standards Existing Sources

Cd	.0008	.0004 #s/1000#s product
Pb	.0008	.0004
Zn	.008	.004
TSS	no limitation	
pH	no limitation	

Standards of Performance New Sources
(a) (Same as for BPT and BAT)
(b) (Same as for BPT and BAT)

Pretreatment New Sources (Same as Pretreatment for Existing Sources)

Subcategory H. Pretreatment Existing Sources

As	$1.6x10^{-3}$	$8x10^{-4}$
Cd	.008	.004
Se	.08	.04
Zn	.08	.04
TSS	no limitation	
pH	no limitation	

Standards of Performance New Sources (Same as for BAT)

Pretreatment for New Sources (Same as for Existing Sources)

Comments and Recommendations:

1. It is suggested that each Development Document show a model for a system of waste generation and treatment for each Subcategory. The model to show flows, raw waste loads, and limited parameter (pounds or concentrations) in the treated effluent.

2. The removal of mercury from the limitations of Subcategories G and H has not been adequately defined in the documents. With mercury on the list of proposed toxic substances it is difficult to understand how an effluent limitation can ignore this compound if it is present in the waters discharged.

3. Is it possible to maintain the pH within the newly proposed limitations without chemical control or addition?

4. The designation "no limitation" is misleading and it should be changed to "not specified" or "no specific limitation".

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

October 1, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the amendment to the effluent limitations guidelines for the Timber Products Processing by the addition of seven new subcategories.

FROM : Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

To : ES&WQIAC Office

TIMBER PRODUCTS PROCESSING ADDITION TO GUIDELINES

General Information:

Only the wet storage and the insulation board manufacturing subcategories allow a discharge of process waste water, after treatment, to navigable waters.

The wet storage regulations will be applicable to about 50 percent of the approximately 700 veneer and plywood plants in the industry. There are approximately 13,000 saw mills and a significant number of them do not practice log washing. The number that use wet storage may be in the 15 to 25 percent range. There are 76 plants in the USA that manufacture particleboard. There are 18 insulation board plants, located in the south, midwest and northwest sections of the country.

Subcategories:

I. Wet Storage
J. Log Washing
K. Sawmills
L. Finishing
M. Particleboard
N. Insulation Board
O. Insulation Board with Steaming or Hard Board Production

Raw Waste Loads:

The primary raw material utilized is wood and wood waste. Urea formaldehyde and pheuol formaldehyde are used as binders in the particleboard manufacturing process. Wax emulsion, paraffin resin, asphalt, starch, and polyelectrolytes may be used as additives in the manufacture of insalation board.

Ponds - There is great variation in the water from ponds because of numbers of logs stored, the precipitation in the area, the season of the year, etc.

In Wet Decking the water use ranges from 20 to 250 gpm per mm bd. ft. in storage. The characteristics of the waste are dependent on species, length of storage, physical activity, hydraulic activity, and the presence of bark.

Treatment Technologies:

Wet Storage - Retention of the floatable solids by a detention device such as a surface barier or a submerged pipe at the discharge point.

Log Washing - One hundred percent recycle of log washing water can be achieved by the installation of a sedimentation system and a screening system.

Sawmills and Planing Mills - No discharge can be achieved through proper management of equipment and reasonable water use.

Fabricating and Finishing - No discharge can be achieved by reasonable water useg wastewater recycle, spray evaporation, incineration, land spreading or discharge to a municipal treatment system.

Particleboard - Treatment and control technology includes judicious water use and disposal of the small valume of wastewater to a septic tank system, spray irrigation, spray evaporation, spraying of wastewater on incoming raw material, spraying of wastewater on log fuel and discharge to a municipal system.

Insulation Board - Treatment and control technology includes primary clarification as practiced by almost all plants. Other technologies practiced include activated sludge, aerated lagoons, spray irrigation, sedimentation, coagulation and water recycle.

No additional technology is presented in the Guidelines for the treatment of the wastes from Insulation Board with Steaming or Hardboard production.

Effluent Limitations:

		BPT				BAT			
		Max.		30 Day Avg.		Max.		30 Day Avg.	
I.	**Wet Storage**								
	Floating Visable Solids	0		0		0		0	
	Debris	0		0		0		0	
J.	**Log Washing**	no discharge				no discharge			
K.	**Sawmills**	no discharge				no discharge			
L.	**Finishing**	no discharge				no discharge			
M.	**Particleboard**	no discharge				no discharge			
N.	Insulation Board - 5938 gal/ton Flow								
		#/ton	mg/l	#/ton	mg/l	#/ton	mg/l	#/ton	mg/l
	BOD_5	7.5	151	2.50	50	2.25	45	0.75	15
	TSS	18.8	380	6.25	126	5.70	115	1.90	38
	pH	6-9				6-9			
O.	Insulation Board - 5938 gal/ton Flow with Steaming or Hardboard								
	BOD_5	22.50	454	7.50	151	6.75	136	2.35	47
	TSS	18.8	380	6.25	126	5.70	115	1.90	38
	pH	6.0-9.0				6.0-9.0			

New Sources are all the same requirement as for BAT.

PERCENT REMOVAL

N.	**Insulation Board - Flow** 5938 gal/ton				
	BOD_5	87.5	95.9	96.2	98.8
	TSS	75.6	91.9	92.6	97.6
O.	Insulating Board with Steaming or Hardboard - Flow 5938 gal/ton				
	BOD_5	62.5	87.5	82.5	96.1
	TSS	25.6	91.9	92.6	97.6

Raw Waste Load for both subcategories **N** and O
BOD_5 1211 mg/l, TSS 1559 mg/l

Comments and Recommendations:

1. On pg. 99 of the Development Document Table 14 shows no units for the constituents.

2. Glossary does not define "floating visable solids," or "debris" as related to the guideline. The measurement of zero in this case is

impossible. Would a floating toothpick or match be a violation?

3. Are the process water pollutants mentioned in 429.95 (a) new sources, the pollutants indicated in the limitations or those mentioned in the Development Document Table 28 pg. 131?

4. The Contractor's Report must be revised into a Development Document that relates to the subcategories as they are given in the proposed guidelines.

5. Figure 39, pg. 168 of Development Document does not show that water usage is liters/kkg. Is it?

6. In line 313 of the Proposed Guidelines judicious is mispelled.

7. Line 318 & 319 of the guidelines probably should read "by most plants" or "by almost all plants".

8. Information on concentrations of constituents in raw wastes and effluents should be indicated in the Development Document. It is believed that this information exists in the Guidelines Division but it does not often get into the Development Documents.

9. It seems strange that the limitations for subcategory O, BOD_5 are so much higher than they are for subcategory N when the same technology for treatment is suggested for both subcategories.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

October 8, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the Proposed Guidelines for the Timber Products Processing Point Source Category by the Addition of Four New Subcategories. Group I Phase II.

FROM : Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO : ES&WQIAC Office

TIMBER PRODUCTS PROCESSING 429

General Information:

The wooden furniture and fixture manufacturing industry accounts for the largest end use of timber products. In 1970 furniture production consumed over 70 percent of the total lumber and particleboard used in manufacturing hardboard consumed. There are about 7,000 manufacturing establishments that will be subject to these regulations. Ninety percent of these establishments have fewer than 100 employees.

Nearly all wastewater discharged is generated from water wash spray booths, laundry facilities and glue applicators.

Of 24 plants listed 16 were visited, 6 were sampled and 13 were telephoned.

Subcategories: (Subpart)

P. Wood Furniture and Fixtures.

Q. Wood Furniture and Fixture Production Without Water Wash Spray Booths But With Laundry Facilities.

R. Wood Furniture and Fixtures Production With Water Wash Spray Booths But Without Laundry Facilities.

S. Wood Furniture and Fixture Production With Water Wash Spray Booths and With Laundry Facilities.

Raw Waste Loads:

The proposed guideline recommends "no discharge" for all subcategories for BPT, BAT and New Sources. Note is however taken of the nature of the wastes from four "Model Plants". Information from the Development Document given in Table I provides a general conception of the raw waste loads that are expected.

TABLE I
Raw Waste Loads
from
Model Plants (M)

	gal/day	mg/l				
Model	Flow	BOD	COD	TSS	pH	Phenol
#1	201	1500	25400	4600	4.8	.127
#2	1202	2750	15150	2060	-	-
#3	683	1500	40432	12645	*	A
#4	1684	2750	24159	6050	**	-

#1: Dry Spray Booths, No Laundry Facilities, Two Glue Spreaders.
#2: Dry Spray Booths, Laundry Facilities, Two Glue Spreaders.
#3: Wet Spray Booths, No Laundry Facilities, Two Glue Spreaders.
#4: Wet Spray Booths, Laundry Facilities, Two Glue Spreaders.

* Daily Stream 4.8, Weekly Stream 11.7
**Weekly Stream 11.7
A.Daily Stream .127

(M) is presumed to be unit operations put together in building block fashion.

Waste Handling Technologies:

A vast majority of plants are located near municipalities and utilize municipal treatment systems. Sixty percent of the 24 plants contacted discharge all or part of their wastewater to municipal sewer systems or haul it to landfill.

Disposal methods used are septic tanks with file fields and lagooning.

Potential treatment technologies considered applicable by the writers of the Development Document are:

1. Incineration via spraying on hog fuel
2. Evaporation ponds
3. Spray irrigation

Economic Impact:

The 1970 industry shipments were almost seven billion dollars. The pricing of wooden furniture is said to be to a large extent dependent on its aesthetic quality, that is consumer acceptance, with its selection based on design, color, and appearance rather than price.

The economic analysis says that there are no anticipated closures of plants that could be attributed to the excessive costs of waste disposal. It is further stated that less than 10% of the industry will be impacted by the proposed guidelines.

Effluent Limitations:

	BPT	BAT	N.S.
Subcategory P	no discharge	no discharge	no discharge
Subcategory Q	"	"	"
Subcategory R	"	"	"
Subcategory S	"	"	"

Comments and Recommendations:

1. Clarification, of category, subcategory, subpart, segment, is necessary.

2. Is the sampling of 24 out of 7,000 an adequate sampling on which to base conclusions drawn? Twenty-four in 7,000 is 0.34%.

3. It is suggested that the action Memorandum from the Assistant Administrator for Water and Hazardous Materials include the information included in this report.
    General Information (Plants in industry, plants surveyed etc.)
    Subcategories
    Raw Waste Loads
    Waste Handling Technologies
    Economic Impact
    Effluent Limitations Proposed

4. Are limitations for BPT, "no discharge" reasonable for 1977 for all plants?

5. A gradation of effluents discharged for 1977, new sources, 1983 and 1985 is suggested.

6. An early evaluation, of the usefulness of the guidelines in permit preparation, should be made.

7. Why is subcategorization of the Timber Products Industry, Group I, Phase II necessary when all of the limitations are "no discharge"?

8. Basing the limitations for any guideline on the average of the best existing performance is not reasonable because it indicates that approximately one half of the best plants can not meet the proposed guideline.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 2046[illegible]

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December 9, 197[illegible]

MEMORANDUM

SUBJECT: Report on the advanced draft copy of the promulgated Effluent Limitations Guidelines for the Timber Products Subcategories I,J,K,L and M. Subcategories [illegible] are not covered.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, [illegible]

TO: ES&WQIAC Office

On September 2[illegible], 1974 a report with comments and recommendations was made on the Rule-Making Package for the proposed guidelines. Many of the nine comments and recommendations were regarding editorial changes in the Guideline and Draft Development Document. The Development Document for the promulgated guideline draft did not accompany the final guideline draft so it is not known whether the Committee suggestions reached the project officer.

The definition of "debris" was revised as suggested and [illegible] was listed among the contributors.

Timber Products Processing
Subcategories I, J, K, L & M
Draft Promulgated Guidelines

General Information

The Agency originally proposed [illegible] additional subcategories not included in this [illegible] Insulation Board Manufacturing Subcategory and [illegible] Board Manufacturing with Steaming [illegible] As a result of public comments [illegible] additional information [illegible] After this date [illegible] to these subcategories will be [illegible]

The pretreatment standards for new sources promulgated for Subcategories I,J,K,L & M have been modified to indicate the pollutants present in process waste waters generated by these Subcategories and permit the discharge of pollutants in amounts that can be adequately treated by publicly owned treatment systems.

Subcategories:

I. Wet Storage
J. Log Washing
K. Sawmills
L. Finishing
M. Insulation Board

Effluent Limitations:

I. Wet Storage
BPT. There shall be no debris discharged with any dimension greater than 2.54 cm. (1.0 inch), and the pH of that process waste water shall be within the range of 6.0 to 9.0.
BAT. (Same as BPT except the pH range of 5.5 to 9.0 is given, probably in error.)
N.S. (Same as BPT)
P.S. Pretreatment Standards
pH no limitation
BOD_5 no limitation
TSS no limitation
Oil & Grease 100 mg/l

J. Log Washing
BPT no discharge
BAT no discharge
N.S. no discharge
P.S.
pH no limitation
BOD_5 no limitation
TSS no limitation
Oil & Grease 100 mg/l

K. Sawmills and Planing Mills
BPT, BAT & N.S. no discharge
P.S. pH, BOD_5, TSS no limitation
Oil & Grease 100 mg/l

L. Finishing
BPT, BAT & N.S. no discharge
P.S. pH, BOD_5, TSS no limitation
Oil & Grease 100 mg/l

M. Particleboard:
BPT, BAT & N.S. no discharge
P.S. pH, BOD_5, TSS no limitation
Oil & Grease 100 mg/l

Special Items:

Attention is called to the "exemption" or "variance" clause under the BPT section of each subcategory.

It is noted that the definition of [illegible] waste waters [illegible] excludes cooling waters boiler blowdown, [illegible] runoff and fire control water.

The Timber Products Processing Point Source Category [illegible] Pretreatment Standards for Existing Sources was [illegible] and there are no specific recommendations in regard to it.

Comments and Recommendations:

1. It is surmised that [illegible]

2. The basis for the limitation of [illegible] pretreatment for subcategories [illegible] pretreatment standards for existing sources [illegible] stantiated?

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December 9, 1974

MEMORANDUM

SUBJECT: Proposed Limitations for the Timber Products Processing Industry, Subcategories F,O,P and S. (Wood Furniture)

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don F. Bloodgood

TO: ESWQIAC Office

The Rule-Making Package for the Proposed Guidelines was reviewed and a report forwarded on October 5, 1974. There are no readily noticed changes in the Rule-Making Package Proposed Guidelines and the Published Proposed Guidelines. The questions, comments, and recommendations included in the ESWQIAC report of early October should be considered before the guidelines and final development document are promulgated and published.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

[illegible] 1976

MEMORANDUM

SUBJECT: Comments and Recommendations on the Published Proposed Rules for the Timber Products Point Source Category, Subcategories I,J,K,L,M,N and O.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Jon G. [illegible]

TO: ESWQIAC Office

TIMBER PRODUCTS PROCESSING
Subcategories I,J,K,L,M,N and O

A report was prepared on the Pulp-Making Category dated Sept. 20, 1976. Reference to it is suggested.

Subcategories

I. Wet Storage
J. Log Washing
K. Sawmills and Planing Mills
L. Finishing
M. Particleboard Manufacturing
N. Insulation Board Manufacturing
O. Insulation Board Manufacturing with Steaming or Hardboard Production

Effluent Limitations

I. Debris [illegible]
pH [illegible]

J. [illegible]

K. [illegible]

		BPT		BAT		NS
L.		N.D.		N.D.		N.D.
M.		N.D.		N.D.		N.D.
N.	BOD_5	7.5	2.50	2.25	0.75	
	TSS	18.8	6.25	5.70	1.90	
	pH	6.0-9.0		6.0-9.0		
	New Sources same as BPT					
O.	BOD_5	22.60	7.50	6.75	2.35	
	TSS	18.80	6.25	5.70	1.90	
	pH	6.0-9.0		6.0-9.0		
	New Sources same as BPT					

Comments and Recommendations:

1. The Development Document for the Proposed Rules was not available at the time of this review. It is suggested that the comments on the Rule-Making Package be reviewed.

2. It was noted that "debris" has been defined in a clear manner.

3. The indicated change of policy requiring BPT for New Sources instead of BAT seems reasonable.

4. It is again suggested that concentration of constituents in raw wastes and effluents be indicated in the Development Documents. Indications are that these figurers are used in developing the Guidelines.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

October [illegible]

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for proposed guidelines for the Paint Formulating and Printing Ink Formulating source categories.

FROM : Effluent Standards and Water Quality Information Advisory Committee. Member, Jon E. Bloodgood

To : ES&WQIAC Office

PAINT FORMULATING AND PRINTING INK
FORMULATING POINT SOURCE [illegible]

General Information:

The printing ink industry comprises over [illegible] printing ink producers, but seven companies share over [illegible] percent of the market. These are: Inmont, Sinclair and Valentine, Sun Chemical, Cities Service, Tenneco Chemicals, Borden and Flint Ink.

The paint industry consists of about [illegible] companies operating almost 1700 plants. In 1971, total industry employment was nearly [illegible]. The four largest companies (Sherwin-Williams, DuPont, PPG Industries and Glidden-Durkee) account for about [illegible] percent of the sales and the largest 50 account for 41 percent of the sales.

** Printing Ink Formulating

Subcategories: (Ink)

A. Oil-Base Ink

B. Water-Base Ink

Raw Waste Loads: (Ink)

Data is very limited on wastewater flows. For Systems with no water reuse, the range was from 500 to 1000 gals/1000 lb. of ink including cooling, boiler and process waters. In the recycle system it was estimated that 13.6 gal./1000 lb. of ink was discharged as sludge the only discharge of process waters.

Constituents that have been found in the raw wastes are:

pH	9.4	
BOD	412	mg/l
Total COD	926	"
Dissolved COD	742	"
Total Solids	361	"
Total Susp.S.	156	"
Oil & Grease	57	"
Aluminum	1.1	"
Boron	.19	"
Cobalt	0	"
Chromium	.1	"
Copper	.06	"
Iron	1.4	"
Lead	.29	"
Manganese	.06	"
Nickel	.01	"
Silver	0	"
Tin	0	"

Treatment Technologies: (Ink)

1. Sedimentation
2. Flocculation
3. Zero discharge of process waters
4. Scavanger pickup and disposal
5. Recycling caustic tub wash where only sludge is wasted
6. Distillation
7. Landfill disposal of sludges

Effluent Limitations: (Ink)

	BPT	BAT	NS
a. Oil-Base Ink	no discharge	no discharge	no discharge
b. Water-Base Ink	no discharge	no discharge	no discharge

Economic Impact: (Ink)

It has been estimated that the control technology will increase the cost of printing ink in a range from [illegible] to [illegible] per pound depending on the method used to meet the requirements.

Comments and Recommendations: (Ink)

1. The free use of landfills as a completely satisfactory method of sludge disposal is questioned, even though the practice is deemed by some to meet the requirement of [illegible] discharge of process waters to navigable streams".

2. Is there a correct and consistent use of: [illegible] Segment, and subpart? If there is where is it [illegible]

[illegible] Paint

Subcategories: (Paint)

A. Oil-Base Paint
B. Water-base Paint

Raw Waste Loads: (Paint)

"It is not possible to estimate [illegible] wastewater arising from these operations.

Constituents that have been [illegible]

pH	[illegible]
BOD	[illegible]
Total COD	[illegible]
Dissolved COD	[illegible]
Total Solids	[illegible]
Settleable Solids	[illegible]
Total Susp. Solids	[illegible]
Ammonia	[illegible]
Total Kjeldahl Nitrogen	[illegible]
Oil & Grease	[illegible]
Total Phosphorus	[illegible]
Aluminum	[illegible]
Antimony	[illegible]
Barium	
Cobalt	[illegible]
Chromium	
Copper	
Iron	[illegible]
Lead	[illegible]
Manganese	
Nickel	[illegible]
Silver	
Tin	[illegible]
Zinc	[illegible]
Phenols	[illegible]
[illegible]	[illegible]

Treatment Technologies: (Paint)

1. Sedimentation
2. Flocculation
3. Neutralization
4. Landfill
5. Reuse of Water
6. Evaporation
7. Incineration

"The effectiveness of the treatment methods employed by the paint industry is difficult to judge on the basis of available data. However, the most significant constituents of paint wastes are amenable to treatment by physical - chemical methods combined with biological treatment for removal of biodegradable organics."

Effluent Limitations: (Paint)

Subpart	BPT	BAT	NS
1. Oil-Base Paint	no discharge	no discharge	no discharge
2. Water-Base Paint	no discharge	no discharge	no discharge

Economic Impact: (Paint)

"The information available to the Agency indicates that in the paint formulating industry, a very small number of direct dischargers have applied for NPDES permits, which indicates a minimal economic impact. However, the Agencies economic Contractor has indicated that there are a large number of direct dischargers and that the economic impact to the smaller producers would be severe. These results are contradictory and need to be clarified."

Comments and Recommendations: (Paint)

1. If the flow of wastewater can not be accurately predicted how can it be reasonable to require "no discharge"?

2. It is suggested that [illegible] assist in unearthing information on the economic impact of the proposed regulations upon the industry by advertising a special hearing for this specific purpose.

3. It is questionable whether "no discharge" for BPT (1977) is reasonable.

Source: Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

October [illegible]

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the proposed regulations for the Rubber Point Source Category Group I, Phase II.

FROM : Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO : ES&WQIAC Office

RUBBER PROCESSING POINT SOURCE AMENDMENT
ADDITION OF SEVEN NEW SUBCATEGORIES

General Information:

The subcategories presented in this document [illegible] discussed here are representative of [illegible] major segments of the rubber processing industry: first, the [illegible] rubber segment and second, the reclaimed rubber segment.

There are approximately [illegible] plants [illegible] operating in the first segment. They convert 1,[illegible],000 long tons of synthetic rubber and 190,000 long tons of natural rubber [illegible] products. An estimated [illegible] of the [illegible] discharge [illegible] municipal systems. Many of the plants were built before [illegible]. New plants built outside the [illegible] have [illegible] it necessary to meet local ordinances for pollution control and these will probably need to make relatively minor [illegible].

In the second segment there are [illegible] companies that reclaim rubber. It is reported that these companies are caught in a profit squeeze even though [illegible]

Subparts - (Subcategories):

Part 428 - Rubber Processing

Subpart E. - Small-Sized General Molded, Extruded and Fabricated Rubber Plants Subcategory.
Subpart F. - Medium-Sized General Molded, Extruded, and Fabricated Rubber Plants Subcategory.
Subpart G. - Large-Sized General Molded, Extruded, and Fabricated Rubber Plants Subcategory.
Subpart H. - Wet Digestion Reclaimed Rubber Subcategory.
Subpart I. - Pan, Dry Digestion, and Mechanical Reclaimed Rubber Subcategory.
Subpart J. - Latex-Dipped, Latex Thread and Latex-Molded Rubber Subcategory.
Subpart K. - Latex Foam Subcategory.

Small Plants - those that process less than 8200 lbs./day.
Medium-Sized Plants - those that process between 8200 and 23,000 lbs./day.
Large-Sized Plants - those that process more than 23,000 lbs./day.

Raw Waste Loads:

The Development Document summarizes the raw waste loads as follows for the subcategories E, F and G:

1. Process waste waters are of low flow rate and have little impact on the total effluent flow rate.

2. The most significant process waste water streams occur by spillage, leakage, wash downs, and runoffs. They contribute the majority of the suspended solids and oil to the final effluent. The flow rate of this type of process waste water is dependent on plant size, and increases relative to production level as plant size decreases.

3. Other process streams worthy of consideration are vulcanizer condensate from the lead-sheath and cloth-wrapped hose production and cement dipped goods manufacture.

4. Other process streams are of negligible importance, their impact being minor or undetectable. Table [illegible] from the [illegible] provides the information tabulated as follows:

Size of Plant	Subcategory	Flow gal/1000 #s	mg/l COD	mg/l TSS	mg/l Oil	mg/l Lead
1	E	1944	182	216	62	-
2	F	1172	180	122	60	-
3	G	743	180	145	61	-

Specific Process

	Flow gal/1000 #s	mg/l COD	mg/l TSS	mg/l Oil	mg/l Lead
Vulcanizer Condensate	54	-	63	-	[illegible]
Vulcanizer Condensate	63	823	16	-	-

It has been concluded from the data presented in the D.D. that the raw waste loadings for subcategories H and I are as follows:

Subcategory	Flow gal/1000 #s	mg/l COD	mg/l BOD	mg/l TSS	mg/l Oil
H	1141	1952	399	2081	5258
I	394	122	33	58	150

It has been concluded that the raw waste loads for subcategories J and K are as follows:

Subcategory	Flow gal/1000 #s	mg/l COD	mg/l BOD	mg/l TSS	mg/l TDS	mg/l Oil	mg/l Surfactants	mg/l Zinc
J	8765	529	108	2148	209	62	5	-
K	2124	4282	1150	492	1151	571	5.1	200

Treatment Technologies:

BPT
1. In plant controls
2. Treatment of oily wastes
3. Treatment of lead bearing streams
4. Solids separation
5. Coagulation
6. Biological treatment
7. Segregation of wastes
8. Solid waste disposal

BAT
1. Sand filteration

Economic Impact:

The economic impact statement says that BPT will result in 22 threatened plants with no additional threatened plants for BAT. The threatened plants employ 1270 persons. The price of products in the hose, belting and miscellaneous rubber products groups, will be increased.

Effluent Limitations:

Subcategory E - Flow 1944 gal/1000 #s

Effluent Characteristics	BPT mg/l Max. day	BPT mg/l Avg.	BAT mg/l Max. day	BAT mg/l Avg.
Oil & Grease	15	10	15	10
TSS	59	39	59	39
Lead	.68	.43	.068	.04
pH	6.0 to 9.0		6.0 to 9.0	

New Sources to be same as BPT.

Subcategory F - Flow 1127 gal/1000 #s

Oil and Grease	15	10	15	10
TSS	61	40	61	41
pH	6.0 to 9.0		6.0 to 9.0	
Lead	1.12	.71	.11	.07

New Sources to be same as BPT.

Subcategory G - Flow 945 gal/1000 #s

Oil & Grease	15	10	15	10
TSS	61	40	61	40
pH	6.0 to 9.0		6.0 to 9.0	
Lead	1.8	1.1	.18	.11

New Sources to be same as BPT.

Subcategory H - Flow 1141 gal/1000 #s

COD	964	642	964	642
Oil & Grease	91	61	91	61
TSS	365	243	365	243
pH	6.0 to 9.0		6.0 to 9.0	

New Sources Same as BPT.

Subcategory I - Flow 394 gal/1000 #s

Oil & Grease	66	44	66	43
TSS	88	58	44	58
pH	6.0 to 9.0		6.0 to 9.0	

New Sources same as BPT.

Subcategory [illegible] - Flow [illegible] gal [illegible]

Effluent Characteristics	BPT mg/l			[illegible]		
	Max	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Oil & Grease	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Chromium	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

New Sources same as BPT.

Subcategory [illegible] - Flow [illegible] gal [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TSS	[illegible]	[illegible]	[illegible]	[illegible]
pH	[illegible]	[illegible]	[illegible]	[illegible]

New Sources same as BPT.

PERCENT REMOVAL [illegible]

Subcategory (Subpart)		COD	TSS	Oil & Grease	Lead	[illegible]	[illegible]	[illegible]
E	BPT		81.[illegible]	[illegible]				
	BAT		81.9[illegible]	[illegible]				
F	BPT		[illegible]	85.[illegible]				
	BAT		[illegible]	[illegible]				
G	BPT		72.4	81.[illegible]	98.5[illegible]			
	BAT		72.4	[illegible]	99.8[illegible]			
H	BPT	7.44	99.1	98.[illegible]				
	BAT	7.[illegible]	99.1	[illegible]				
I	BPT		0	[illegible]				
	BAT		0	11.33				
J	BPT		98.1	89.2		[illegible]		
	BAT		98.1	89.2		[illegible]		
K	BPT		81.[illegible]			93.8[illegible]	99.3	
	BAT		89.23			93.1[illegible]	99.3	

Comments and Recommendations:

1. The Development Document should be written so that the sections correspond with the subparts - subcategories of the proposed guidelines and in the same sequence.

2. The mg/l of lead shown in Table [illegible] of the [illegible]

3. It would appear that there has been an inadequate sampling of the 1500 plants in the first segment.

4. In Table [illegible] of the D.D. [illegible] a more apparent [illegible] designation than "Category [illegible]" and "Category [illegible]"

5. There is confusion in designation of plants and subcategories with similar [illegible] in Table [illegible] of the D.D.

6. In Table [illegible] of the D.D. the title refers to Subcategories [illegible] and [illegible] but there is no designation or classification in the body of the table.

7. Table [illegible] of the D.D. includes information on Categories [illegible]. [illegible] should this information rather be a part of the [illegible]

8. Table [illegible] of the D.D. provides information on Subcategories [illegible] with [illegible] designations in the table of Subcategories but encloses the information as [illegible] plant designations of [illegible]

9. It seems difficult to believe that plants [illegible] in Subpart (Subcategory) [illegible] should be in the same Subcategory when the suspended solids from plant [illegible] are 75 mg/l (3.56 #s/1000 #s) and from plant [illegible] they are 3017 mg/l (310.[illegible] #s/1000 #s). (See Table [illegible] of the D.D.)

10. Table [illegible] of D.D. does not show chromium present in the waste waters for Category [illegible]. Why is there a limitation if it is not shown to be present?

11. Why is the permissable BOD effluent concentration so high for Subcategory [illegible]?

12. The Development Document and Proposed Guidelines will require a great deal of overhauling before promulgation.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rubber Processing Rule-Making Package for promulgation of amendments to the effluent limitations guidelines for existing sources and new source standards of performance and pretreatment and proposal of pretreatment standards for existing sources for the Rubber Processing Industry.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

RUBBER PROCESSING POINT SOURCE

General Information:

A report was prepared by ES&WQIAC on about September 30, 1974 on the Rule-Making Package for the Proposed Regulations for Subcategories E,F,G,H,I,J and K.

Subcategories:

In the Rule-Making Package for Promulgation and the Proposal for the Pretreatment Standards there has been no change in the Subcategorization.

Effluent LImitations:

There apparently were changes made in the Rule-Making Package limitations presented in the proposals.

In Subcategory E, limitations in the document being reviewed the oil and grease permissable concentration was raised from 10 to 15 mg/l for both BPT and BAT. The new source limitations are now the same as for BAT. The lead limitation for BPT was changed from .41 mg/l to .04 mg/l.

In Subcategory F limitations the lead concentration was changed from .71 mg/l to .07 mg/l and the new source limitations were made the same as for BAT.

In Subcategory G the oil and grease BPT and BAT limitations were decreased from 18 mg/l to 15 mg/l. The lead limitation was decreased from 1.1, for BPT, to .11 mg/l. The limitations for new sources were made the same as BAT.

In Subcategory H the oil and grease limitations for BPT and BAT were decreased from 61 mg/l to 15 mg/l, and the TSS were decreased from 243 mg/l to 86 mg/l. The new source limitations were made the same as BAT.

In Subcategory I the new source limitations were made the same as BAT.

In Subcategory J the chromium limitation for BPT and BAT was raised from .025 mg/l to .05 mg/l. The new source limitations were made to be the same as BAT.

In Subcategory K the BOD_5 limitation for BOD_5 was changed from 532 mg/l to 79 mg/l. The new source limitations were made the same as BAT.

The Rule-Making Package for Promulgation has added limits for TSS from wet scrubbers.

Subcategory	TSS	
	BPT	BAT
E	178 mg/l	31 mg/l
F	295	51
G	467	80

The Pretreatment Standards for New Sources are:

Subcategory	pH	TSS	O & G mg/l	Lead mg/l	COD mg/l	BOD_5	Chromium mg/l	Zinc
E	NL	NL	100	.04	-	-	-	-
F	NL	NL	100	.07	-	-	-	-
G	NL	NL	100	.11	-	-	-	-
H	NL	NL	100	-	642	-	-	-
I	NL	NL	100	-	852	-	-	-
J	NL	NL	100	-	-	NL	.05	
K	NL	NL	-	-	-	NL	-	1.4

NL = no limitation

Comments and Recommendations:

1. The logic used in making BPT and BAT limitations the same, is questioned.

2. It would seem that a liberal allowance was being made for [illegible] in the discharge from wet scrubbers particularly for BPT.

3. In the pretreatment standards for new sources there is an objection to the use of "no limitation". I know many waste-water treatment plant operators who would misunderstand the statement.

4. What would be the reasoning for a COD limitation for Subcategories [illegible] and F, pretreatment standards for new sources?

5. Why is it that the lead limitation for Subcategory G can be 0.11 mg/l while for Subcategory F the pretreatment standard limitation is only 0.04 mg/l?

6. Why is the pretreatment standard for oil and grease 100 mg/l?

7. No development document available.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

[illegible]
INFORMATION ADVISORY COMMITTEE

October 8, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the Proposed Regulations for the Significant Organic Products Segment of the Organic Chemicals Manufacturing Point Source Category.

FROM : Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO : ES&WQIAC Office

SIGNIFICANT ORGANIC PRODUCTS SEGMENT OF THE ORGANIC CHEMICALS MANUFACTURING POINT SOURCE CATEGORY
GROUP I, PHASE II

General Information:

The Significant Organic Products include 54 product-process segments. The Group I, Phase I and Group I, Phase II cover approximately 95 percent of the industry's production.

The eight largest companies, which operate only 10 percent of the establishments account for approximately 60 percent of the value of the shipments and approximately 60 percent of all employees. The major portion of establishments, approximately 300 (50 percent) are small plants employing 20 or less employees. It has been estimated that most of these are users of publicly owned treatment systems.

Subcategories (Subparts):

Subpart D. - Nonaqueous Processes Subcategory
Subpart E. - Processes With Process Water Contact Only as Steam Diluent or Absorbent Subcategory

Subpart F. - Aqueous Liquid-Phase Reaction Systems Subcategory
Subpart G. - Batch and Semi-Continuous Processes Subcategory

Products:

Subcategory D Products

BTX aromatics
Cumene
P-Xylene

Subcategory E_1 Products

Chlorobenzene
Chloromethanes
Chlorotoluene
Diphenylamine
Perchloroethylene
Phthalic Anhydride by Oxidation of Naphthalene
Phthalic Anhydride by Oxidation of o-Xylene

Subcategory E_2 Products

Hexamethylenediamine by Hydrogenation of Adiponitrile
Hexamethylenediamine by Ammonolysis of 1, 6-Hexanediol
Methyl Ethyl Ketone
Tricresyl Phosphate

Subcategory E_3 Products

Adiponitrile
Benzoic Acid
Bezaldehyde
Methyl Chloride

Subcategory E_4 Products

Malaic Anhydride

Subcategory F_1 Products

Ethyl Acetate
Propyl Acetate
Propylene Glycol

Subcategory F_2 Products

Cyclohexanone Oxime
Isopropanol

Subcategory F_3 Products

Oxalic Acid
Formic Acid

Subcategory F_4 Products

Calcium Stearate
Hexamethylene Tetramine
Hydrazine Solutions
Isobutylene
Sec - Butyl Alcohol

Subcategory F_5 Products

Acrylonitrile
Snythetic Cresol
Caprolactam
p - Aminophenol
Propylene Oxide

Subcategory F_6 Products

Pentaerythritol

Subcategory F_7 Products

Saccharin

Subcategory G_1 Products

o-Nitroaniline
p-Nitroaniline

Subcategory G_2 Products

Pentachorophenol

Subcategory G_3 Products

Fatty Acids

Subcategory G_4 Products

Fatty Acid Derivatives

Subcategory G_5 Products

Ionone and Methylionone
Methyl Salicylate

Subcategory G_6 Products

Miscellaneous Batch Chemicals

Subcategory G_7 Products

Citronellol
Geraniol
Plasticizers

Subcategory G_8 Products

Dyes & Intermediates

Subcategory G_9 Products

Pigments
Toners

Subcategory G_{10} Products

Pigments
Lakes

Subcategory G_{11} Products

Citric Acid
Napthtenic Acid
Sodium Glutamate
Tannic Acid

Subcategory G_{12} Products

Vanillin

Raw Waste Loads:

The information shown in Table I was abstracted from the Development Document. No claim is made that the information shown is interpreted as intended. It is reasonable to suppose that any person using the

Development Document in the preparation of a permit [illegible] same interpretation of the information in the D.D.

Treatment Technologies:

"Control and treatment technologies which are available for the Organic Chemicals Industry can encompass the entire spectrum of wastewater treatment technologies."

Economic Impact:

The Economic Impact Analysis Study was not complete at the time of the RMP for the Proposed Guidelines.

Effluent Limitations:

See Tables II and III.

Comments and Recommendations:

1. The great difficulty in writing guidelines for this segment of the industry is appreciated.

2. Subcategorization by process procedures can hardly be satisfactory if characteristics of residues are not taken into account.

3. How can a waste with a COD of 9468 mg/l be considered with a waste of 490 mg/l? (See Table I Cumene, p-Xylene, BTX). This is just an example of the complex situation that exists. In Table II for BPT the effluent limitation varies from 2.3 mg/l to 6000 mg/l for the nonaqueous process subcategory. This is not defensible on face value. This indicates the necessity for specific organic compound production raw load consideration and effluent discharge limitation, if not plant by plant evaluation.

4. As an example. Why should the limitations for BPT for E_1 vary from 2.0 to 56 mg/l for the effluents discharged?

5. For E_2 RWL flows that vary from 3335 to 126 gal./1000#s of product are difficult to evaluate for effluent limitations. (See Table II)

6. In consideration of the defence for allowing a BOD_5 effluent variation in E_3 of 14 mg/l to 40 mg/l it is difficult to rationalize the reasons for the conclusion that was apparently reached.

7. The reasoning that permits the discharge of an effluent with a BOD_5 concentration of 244 mg/l, BPT and 104 mg/l BAT (average) for effluents from malaic anhydride is not obvious.

8. Why should it be possible to discharge an effluent, from the production of propyl acetate, of 93 mg/l when the limitation for the effluent from propylene glycol is 20 mg/l for BPT?

9. Why should the limitation for BPT effluents from oxalic acid production be 3 mg/l? (see Table II cont.).

10. BAT limitations for BOD_5 average of 1 mg/l is certainly unreasonable.

11. The BOD_5 average for F_4 varies from 3 to 65 mg/l for BPT and from 1 to 28 mg/l for BAT. Is it not reasonable to ask that the requirements be consistent within a grouping such as F_4?

12. It seems unreasonable to believe that a permissive effluent concentration discharge from the production of synthetic cresole for BPT can be 2638 mg/l for BPT 30 day average and 1109 mg/l for BAT 30 day average.

13. The Economic Impact Analysis should be considered by all parties before the promulgated guidelines are published.

14. The Proposed Guidelines line 1482 should probably have the word "paint" changed to "point".

15. In the D.D. lines 1832 thru 1840 show such a wide difference between plants. Is it fair to say that all plants have a RWL equal to the average of the values shown?

16. It may be found impractical to write a guideline that groups several chemicals into a single subcategory.

cc: Director, Effluent Guidelines Division

SIGNIFICANT [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]			
[illegible]	[illegible]			
[illegible]	[illegible]			
[illegible]	[illegible]			
[illegible]	[illegible]			
[illegible]	[illegible]			
[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]			
[illegible]	[illegible]		[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	610	[illegible]
TDI	.54	11,150	[illegible]	[illegible]
[illegible]	.32	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	.15	[illegible]	[illegible]	[illegible]
[illegible]	.26	[illegible]	[illegible]	[illegible]
[illegible]	.43	[illegible]	[illegible]	[illegible]
[illegible]	71.2	[illegible]	[illegible]	[illegible]
[illegible]	.75	157	[illegible]	[illegible]
[illegible]	.355	40	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	28.2	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	17	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	17	[illegible]	[illegible]	[illegible]
[illegible]	155	[illegible]	[illegible]	
[illegible]	142	7	[illegible]	
[illegible]	[illegible]	[illegible]	76	[illegible]
[illegible]	.703	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	4.		[illegible]	
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]			
[illegible]	[illegible]			

PURDUE UNIVERSITY

[illegible]

[illegible] WASTE [illegible]

SIGNIFICANT ORGANIC CHEMICALS

PRODUCT	FLOW	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible],763	[illegible]	326	[illegible]
[illegible]	[illegible],200	[illegible]	[illegible]	[illegible]
[illegible]	2241	[illegible]	[illegible]	[illegible]
Dyes & Dye Intermediates	[illegible],231	[illegible]	[illegible]	[illegible]
[illegible]	[illegible],760	[illegible]	[illegible]	[illegible]
o-Nitro aniline	[illegible],200	[illegible]	[illegible]	[illegible]
p-Nitro aniline	[illegible],050	[illegible]	[illegible]	[illegible]
[illegible]	354	[illegible]	[illegible]	[illegible]
[illegible]	1120	[illegible]	[illegible]	[illegible]
[illegible]	458	[illegible]	[illegible]	[illegible]
[illegible]	[illegible],044	[illegible]	[illegible]	[illegible]
Plasticizers	7835	[illegible]	[illegible]	[illegible]
Tannic acid	1,200	[illegible]	[illegible]	[illegible]
Vanillin	15900	[illegible]	[illegible]	[illegible]

[illegible] AS INDICATED

[illegible] WHICH ARE IN [illegible]

[illegible]			SAT			N.[illegible]	
BOD	TSS	COD	BOD	TSS	COD	BOD	TSS

[illegible]

TABLE II (cont.)

Cyclohexanone oxime
Isopropanol

[illegible]

[illegible]

[illegible] p-nitroaniline	[illegible]														
G21 Pentachlorophenol	354	[illegible]	[illegible]	[illegible]	4.24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11.45	5.11	10.4	.62
G22 [illegible]		.21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.22	[illegible]	.3	.75
G23 [illegible]		[illegible]	1.2	3.73	[illegible]	[illegible]	[illegible]	[illegible]	.72	[illegible]	[illegible]	[illegible]	.93	1.34	[illegible]
[illegible]	420														
[illegible]	458											.84	.37	[illegible]	[illegible]
[illegible]	22.41														
[illegible]	7.23														7
[illegible]													.43		
[illegible]														.27	
Pigments, [illegible]												39.7	33.2	[illegible]	[illegible]

[illegible]

TABLE II (CONT.)

		[illegible]				BAT								N.S.
	[illegible]	BOD		TSS		BOD		TSS		COD		BOD		TS
Gr. Citric acid	7200	90	40	134	61	2	1.3	3.5	1.9	222	159	13	6	.5
		→ 43	19	64	2.9 ←									
Naphthenic acid	4760	194	86	127	56	28	16	42	23	2670	1914	161	71	62
x-Riboneglutamate	113044	7.	3	5	2	1	.6	2	.8	100	72	6	3	2
Tannic acid	1200	769	342	502	224	110	63	167	93	10591	7594	639	280	245
		→ 7.7	3.42	[illegible]	2.24 ↔	1.10	0.63	1.67	0.93	10.6	7.6	↔ 6.4	2.8	2.45
Iz [illegible]	[illegible]	164	9.17	136	6.3	37	[illegible]	45	1.6			65	29	19
		→ 104	46	18	8	↔ 5.13	3.28	6.02	3.42	—	—	↔ 86.3	38.3	9.11

PERCENT REMOVALS REQUIRED

	[illegible]			% REDUCTION		GUIDELINE LIMITS [illegible]	
	[illegible]	[illegible]	[illegible]	BPT	[illegible]		
D. Nonaqueous Process Subcategory							
BTX Aromatics	.015			55.0	14.95	.0018	.00076
Cumene	.0001	.0001	.0001	—	—		
P-Xylene	.21	10.5	.057	—	—		
E. Process Water Contact only as steam diluent or absorbent.							
Chlorobenzene							
Chloromethanes							
[illegible]	.24			[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	.0365			0	43.81	.24	.032
Perchloroethylene	.438			95.21	92.69	.24	.032
Phthalic anhydride	.128			0	75.0	.24	.032
Phthalic anhydride [illegible]	.101			99.78	99.77	.24	.032
[illegible]							
Hexamethylenediamine	26.63			99.76	99.92	.064	.019
Hexamethylenediamine	4.0			98.4	99.58	.064	.019
Methyl ethyl [illegible]	[illegible]			99.92	[illegible]	.064	.019
[illegible]	11.8			[illegible]	[illegible]	.064	.019
[illegible]							
[illegible]	[illegible]			99.81	[illegible]	[illegible]	.14
[illegible]	[illegible]			[illegible]	[illegible]	.72	.14
Methyl chloride	[illegible]			91.54	[illegible]	.72	.14
[illegible]							
[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	.16

TABLE III (CONT.)

	BOD	COD	TOC	% REMOVAL BPT	BAT	GUIDELINE LIMITS lbs/1000#s	
F1 Aqueous Liquid-Phase Reaction Systems							
Ethyl acetate	.0295			0	0	.04	.045
Propyl acetate							
Propylene glycol	.016			0	0	.11	.045
F2							
Cyclohexanone oxime							
Isopropanol	.9945			93.95	96.13	.09	.038
F3							
Oxalic acid	1.31	4.36		12.21	32.60	1.15	.49
Formic acid	1.375			16.32	64.32	1.15	.49
F4							
Calcium stearate	[illegible]			[illegible]	[illegible]	.87	.37
Hexamethylenetetramine	[illegible]			92.95	99.56	.87	.37
Hydrazine solutions	9.04			90.43	95.93	.87	.37
Isobutylene	13.6			93.60	97.28	.87	.37
Sec-butyl alcohol							
F5							
Acrylonitrile	[illegible]			[illegible]	[illegible]	[illegible]	.37
Synthetic cresol							
[illegible]							
Propylene oxide	[illegible]			[illegible]	[illegible]	[illegible]	.37
P-aminophenol	[illegible]			[illegible]	[illegible]	[illegible]	.37
F6							
[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	.17

G Batch & Semi-Continuous Processes	BOD	COD	TOC	% REMOVAL BPT	BAT	EFFLUENT LIMITS #s/1000#s	
G1							
o-Nitroaniline	16			61.50	83.63	6.16	2.62
p-Nitroaniline	2.55			0	0	6.16	2.62
G2 [illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]
G3 Fatty Acids							
G4 Fatty Acid Derivatives							
G5 [illegible] Dimethylamine	23			98.04	99.61	.45	.09
Methyl salicylate	22			97.95	99.59	.45	.09
G6 Miscellaneous Batch Chems.							
G7 Citronellal and Geraniol	58.1			92.07	99.85	1.12	.09
G8 Dyes & Dye intermediates	[illegible]			93.13	99.30	15.8	6.7
G9 Pigments, Toners							
[illegible] Lakes							

TABLE III (CONT.)

	[illegible]			REMOVAL		GUIDELINE LIMITS	
	BOD	COD		T	BAT	#s/1000#s	
G11							
Citric acid	328			94.21	99.81	19	.63
Naphthenic acid							
Sodium glutamate							
Tannic Acid	560			99.37	99.89	3.42	.63
	153			97.76	99.59	3.42	.63
G12							
Vanillin	2350			98.04	99.86	46	3.28

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

October 16, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the Proposed Guidelines for the Meat Products Point Source Category, that adds six new Subcategories. Group I Phase II.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

MEAT PRODUCTS POINT SOURCE CATEGORY
Amended by the addition of Six New Subcategories

General Information:

The six subcategories presented in the Rule-Making package are in two segments of the Meat Products Industry. In the meat processor segment there are five subcategories. In the renderers segment there is one subcategory.

The meat processors segment includes all plants which produce processed meat products but do not slaughter livestock at the plant site. These plants produce fresh meat cuts, smoked meats, sausage, luncheon meats and related products that have an estimated value of $4 to $5 billion for 1973. There are about 1400 plants in this segment. About 90 percent discharge wastes to municipal treatment facilities. The remaining 10 percent have some type of treatment or control facilities.

The second segment the renderers is comprised of about 450 plants which manufacture meat meal, tallow and related products from recoverable meat scraps, grease, fats and dead animals from farms, packinghouses and processors. The rendered products had a value of $400 million in 1972. Of the 450 plants, 50 percent discharge to municipal systems, 25 percent achieve "no discharge" of no pollutants and 25 percent provide waste treatment with a discharge.

Subcategories:

- E. Small Processor Subcategory
- F. Meat Cutter Subcategory
- G. Sausage and Luncheon Meats Subcategory
- H. Ham Processor Subcategory
- I. Canned Meats Processor Subcategory
- J. Renderer Subcategory

Raw Waste Loads:

The information provided in the Development Document was based on samples collected at only a few plants. The averages are shown in Table I.

Treatment Technologies:

- In-Plant Meat Processing
  - Pickling and Curing Solutions
  - Water Conservation Practices
  - Cleanup Operations

- In-Plant Primary Treatment
  - Flow Equalization
  - Screens
  - Catch Basins
  - Dissolved Air Flotation

- Wastewater Treatment Systems
  - Anaerobic Processes
  - Aerated Lagoons
  - Aerobic Lagoons
  - Activated Sludge
  - Trickling Filter
  - Rotating Biological Contactor

- Tertiary and Advanced Treatment
  - Chemical Precipitation of Phosphorus
  - Sand Filter
  - Microscreen - Microstrainer
  - Nitrification - Dentrification
  - Ammonia Stripping
  - Spray or Flood Irrigation
  - Ion Exchange

Rendering

- In-Plant Controls
  - Condensables
  - Control of High Strength Liquid Wastes

- Truck and Barrel Washings
- Odor Control
- Plant Cleanup and Spills

In-Plant Primary Treatment
- Flow Equalization
- Screens
- Catch Basins
- Dissolved Air Flotation

Waste Treatment Systems
- Anaerobic Processes
- Aerated Lagoons
- Aerobic Lagoons
- Activated Sludge
- Rotating Biological Contactor

Tertiary and Advanced Treatment
- Chemical Precipitation
- Sand Filter
- Microscreen - Microstrainer
- Nitrification - Dentrification
- Ammonia Stripping
- Spray or Flood Irrigation
- Ion Exchange

Effluent Limitations:

See Tables II and III.

Economic Impact:

The economic study shows that there may be approximately 16 plant closures in 1977. This would mean 0.6 percent of the industry capacity would close and about 800 persons would be out of work.

In 1983 there would be an additional 23 plants that would close and 1150 more persons would be out of employment.

The closure of a small meat processing plant could result in the loss of $400,000 in annual payrolls representing 0.65 percent of the total payroll for a city of 25,000. Assuming a multiplier of 3.5, the loss of a small plant could reduce the economic base of the community by as much as $1,400,000.

Comments and Suggestions:

1. It is suggested that the Rule-Making Package include tables similar to I, II and III shown in this report.

2. The inclusion of an ammonia limitation for subcategories F, G, H and I is questioned.

3. The inclusion of a phosphorus limitation for subcategory J is questioned.

4. The reason for having the maximum day limitation twice the 30 day average for all constituents is questioned.

5. The economic study indicates that a percentage of plants will be closed if they are to comply with the limitations. Is it to be assumed that plants discharging to municipal systems if required to pay an equitable cost of treatment, that they would also be expected to close?

6. The requirement for "no discharge" for 1977 for subcategory E is believed to be more strict than the law intended.

7. Some of the technology reported for the subcategories may not be feasible at this time and could mislead industry management.

cc: Director, Effluent Guidelines Division

SUMMARY
RAW WAST LOADS

			mg/l					
. SUBCATEGORY	FLOW gallons/1000#s	1000#s per day Processed	BOD5	TSS	OIL & GREASE	AMMONIA	PHOSPHORUS	FECAL COLIFORMS
E SMALL PROCESSOR	400	2.1	317	240	147	68	68	0.6 MM
F MEAT CUTTER	72	138	867	1067	200	1.3	2.42	.44 MM
G SAUSAGE & LUNCHEON MEATS	1150	105	276	360	127	1.52	18.2	--
H HAMS	1270	73	319	309	224	1.52	27.2	.38 MM
I CANNED MEATS	1350	178	1022	404	185	6.6	82.5	.012 MM
J RENDERER	597	206	432	227	145	60	8.8	--

TABLE II

EFFLUENT LIMITATIONS

SUBCATEGORY CONSTITUENT	BPT mg/l		NO DISCHARGE	BAT mg/l		NO DISCHARGE	N.S.		NO DISCHARGE
	MAX DAY	AVG 30 DAYS		MAX DAY	AVG. 30 DAYS		MAX DAY	30 DAY AVG	
E			X			X			X
F									
BOD5	50	25		30	15		50	25	
TSS	60	30		40	20		60	30	
OIL & GREASE	20	10		20	10		20	10	
AMMONIA	—	—		8	4		—	—	
PHOSPHORUS	—	—		4	2		—	—	
G									
BOD5	50	25		29	15		50	25	
TSS	60	30		40	20		60	30	
OIL & GREASE	21	10		21	10		21	10	
AMMONIA	—	—		8	4		—	—	
PHOSPHORUS	—	—		4	2		—	—	
H									
BOD5	51	25		30	15		51	25	
TSS	60	30		40	20		60	30	
OIL & GREASE	21	10		21	10		21	10	
AMMONIA	—	—		8	4		—	—	
PHOSPHORUS	—	—		4	2		—	—	
I									
BOD5	59	29		30	15		59	29	
TSS	71	36		39	20		71	36	
OIL & GREASE	23	12		23	12		23	12	
AMMONIA	—	—		8	4		—	—	
PHOSPHORUS	—	—		4	2		—	—	
J*	* an adjustment is made if hides are cured								
BOD5	60	30		28	14		60	30	
TSS	80	40		40	20		80	40	
OIL & GREASE	40	20		20	10		40	20	
AMMONIA	—	—		8	4		68	34	
PHOSPHORUS	—	—		20	10		—	—	

ALL SUBCATEGORIES pH LIMITATIONS ARE 6.0 to 9.0

FECAL COLIFORM LIMITATIONS ALL SUBCATEGORIES 400 mpn/100

TABLE III

PERCENT REMOVALS

SUBCATEGORY	CONSTITUENTS	BPT	BAT	N.S.
	E	100	100	100
F				
	BOD5	97.12	98.26	97.12
	TSS	97.19	98.13	97.19
	OIL & GREASE	95.0	95.0	95.0
	AMMONIA	—	0	—
	PHOSPHORUS	—	76.25	—
G				
	BOD5	90.94	94.57	90.94
	TSS	91.67	44.44	91.67
	OIL & GREASE	92.26	92.26	92.26
	AMMONIA	—	0	—
	PHOSPHORUS	—	89.01	—
H	BOD5	95.18	97.11	95.18
	TSS	90.29	93.53	90.29
	OIL & GREASE	95.54	95.54	95.54
	AMMONIA	—	0	—
	PHOSPHORUS	—	92.65	—
I				
	BOD5	97.16	98.53	97.16
	TSS	91.09	75.05	91.09
	OIL & GREASE	93.51	93.51	93.51
	AMMONIA	—	39.39	—
	PHOSPHORUS	—	97.58	—
J				
	BOD5	93.06	96.76	93.06
	TSS	82.38	91.19	82.38
	OIL & GREASE	86.21	98.10	86.21
	AMMONIA	—	93.33	—
	PHOSPHORUS	—	0	—

— NO LIMITATION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December 12, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for proumlgation of final regulations and proposed pretreatment standards for Phase II of the meat products point source category.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Robert McCall

TO: ES&WQIAC Office

PHASE II MEAT PRODUCTS

This package is another good example of a good reaction by EPA to written comments received from not only ES&WQIAC but from the industries, regulatory agencies and others. However, in reviewing this package I find that Suggestions 1 and 4 of October 16, 1974 were not addressed in their discussion. The questioning of ammonia limitations for Sub-categories F, G, H & I were addressed by EPA but no changes were made. ES&WQIAC should invite EPA's further attention to this, particularly in light of their dependence on biological nitration without including nitrate standards. In response to Suggestion 3, phosphosous limitations are still included in BAT for Sub-category J. Suggestion 6 in respect to no discharge for 1977 for Sub-category E was responded to by dropping this requirement and replacing it with effluent standards for BPT. In partial response to questions on economy impact, a 75,000 pound cutoff is established for small renderers.

EPA in response to ES&WQIAC and other suggestions has raised the effluent standards for all categories for BPT. This should not only make the standards more acceptable to industry but also will make them more feasible. It is noted that all the standards for new sources use BPT rather than BAT which is commendable. A review of the development document for proposed effluent limitation guidelines was not possible in this time frame and would have been non-productive as the errata sheet indicates significant re-writing is underway.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

February 4, 1975

MEMORANDUM

SUBJECT: Comments and Recommendations on the Draft of Proposed Effluent Limitations Guidelines for the Poultry Segment of the Meat Industry.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

POULTRY SEGMENT OF THE MEAT PROCESSING INDUSTRY

General Information:

A review of the Contractor's Report was prepared by ES&WQIAC on about June 28, 1974.

There are about 500 plants in the five Subcategories. They process about 13 billion pounds a year. The annual sales are nearly $4.0 billion per year. These plants employ nearly 95,000 persons. After tax profits have averaged 1.5 percent each year since 1967.

The 20 largest plants produce 20-25 percent of the annual output.

It has been stated that a "small processor" (24,000 chickens per day) uses as much water each day (250,000 gallons) as a "large" red meat canning plant.

Subcategories:

Subcategory K - Chicken Processor
Subcategory L - Turkey Processor
Subcategory M - Fowl Processor
Subcategory N - Duck Processor
Subcategory O - Further Processing

Raw Waste Loads:

The raw waste loads in liters per 1000 kg and mg/l are shown in Table I. In these units the magnitude of the loads for the several Subcategories is much easier to comprehend.

Treatment Technologies:

In plant primary treatment and by-product recovery, biological treatment gives good results for BPT.

In BAT the impant control of nutrients is suggested. No plants are said to be practicing filtration and nitrification as demonstrated with municipal wastes. It is stated that the advanced treatment princpals, reasonably well demonstrated are microstrainers and ammonia control by stripping or ion exchange.

Effluent Limitations:

For Subcategories K, L, M and N a special formula is used for the determination of limitations when (1) a processor who does conduct by-product rendering and (2) a processor who does conduct further processing. See Table III for the factor X used in the following formula.

$$\text{Constituent kg/kkg LWK} = \frac{X}{\text{kkg RM}} \times \frac{\text{kkg RM}}{\text{kkg LWK}}$$

The Pretreatment Standards for New Sources are proposed as follows:

Subcategory - K	
BOD_5	no limitation
TSS	no limitation
Oil & Grease	no limitation
pH	no limitation
Fecal Coliform	no limitation

Subcategory - L	
BOD_5	no limitation
TSS	no limitation
Oil & Grease	no limitation
pH	no limitation
Fecal Coliform	no limitation

Subcategory M	
BOD_5	no limitation
TSS	no limitation
Oil & Grease	no limitation
pH	no limitation
Fecal Coliform	no limitation

TABLE I
POULTRY

RAW WASTE LOADS

		AVG.	RANGE MIN	RANGE MAX	
K	CHICKEN PROCESSORS				
	FLOW ℓ/KKg	14770	10466	44162	
	BOD_5 mg/ℓ	500	165	1055	
	TSS mg/ℓ	350	7	1117	
	Grease mg/ℓ	213	6	[illegible]	
	NH_3 mg/ℓ	[illegible]	.25	[illegible]	
L	TURKEY PROCESSORS				
	FLOW ℓ/KKg	14241	2854	25102	
	BOD_5 mg/ℓ	347	67	651	
	TSS mg/ℓ	225	40	765	
	GREASE mg/ℓ	60	24	121	
	NH_3 mg/ℓ	10.5	4.5	26	
M	FOWL PROCESSORS				
	FLOW ℓ/KKg	21261	6875	38180	
	BOD_5 mg/ℓ	715	554	1088	
	TSS mg/ℓ	475	287	705	
	GREASE	109	54	156	
	NH_3	4.7	-	-	one determination
N	DUCK PROCESSING				
	FLOW ℓ/KKg	25828	35150	24469	
	BOD_5	273	255	291	
	TSS	164	134	203	
	GREASE	72	26	118	
	NH_3	30.6	2.4	59	
O	FURTHER PROCESSING				
	FLOW ℓ/KKg	12500	2920	21540	
	BOD_5 mg/ℓ	1522	1337	1769	
	TSS mg/ℓ	725	234	1171	
	GREASE mg/ℓ	509	386	631	
	NH_3 mg/ℓ	10.4	7.6	128	

TABLE II *
EFFLUENT LIMITATIONS

mg/l except Fecal Coliforms which are in mpn/100 ml

SUBCATEGORY / CONSTITUENT	BPT		BAT		N.S.	
	MAX DAY	AVG 30 DAY	MAX DAY	30 DAY AVG	MAX DAY	30 DAY AVG
K						
BOD5	47	23	30	15	47	23
TSS	63	31	34	17	62	31
O&G	20	10	20	10	20	10
F. Coli.	400	—	400	—	400	—
NH_3	—	—	8	4	20	10
L						
BOD5	55	27	30	15	55	27
TSS	80	40	34	17	80	40
O&G	20	10	20	10	20	10
F. Coli.	400	—	400	—	400	—
NH_3	—	—	8	4	20	10
M						
BOD5	57	29	22	11	57	29
TSS	68	34	25	13	68	34
O&G	14	7	14	7	14	7
F. Coli	400	—	400	—	400	—
NH_3	—	—	8	4	14	7
N						
BOD5	60	30	30	15	60	30
TSS	70	35	36	18	70	35
O&G	20	10	20	10	20	10
F. Coli	400	-	400	-	400	—
NH_3	-	-	8	4	20	10
O						
BOD5	48	24	24	12	48	24
TSS	56	28	29	14	56	28
O&G	16	8	21	10	16	8
F. Coli	400	—	400	—	400	—
NH_3	—	—	8	4	16	8

* FOR PROCESSORS THAT DO NO RENDERING OR FURTHER PROCESSING

pH LIMITATIONS FOR ALL SUBCATEGORIES 6.0 TO 9.0

TABLE III

FACTORS FOR COMMON FORMULA

SUBCATEGORY CONSTITUENT	(b) BPT	(b) BAT	(b) N.S.	(c) BPT	(c) BAT	(c) N.S.
K						
BOD5	.15	.07	.15	.30	.15	.30
TSS	.17	.10	.17	.35	.18	.35
O&G	.10	.05	.10	.10	.10	.10
L						
BOD5	.15	.07	.15	.30	.15	.30
TSS	.17	.10	.17	.35	.18	.35
O&G	.10	.05	.10	.10	.10	.10
M						
BOD5	.15	.07	.15	.30	.15	.30
TSS	.17	.10	.17	.35	.18	.35
O&G	.10	.05	.10	.10	.10	.10
N						
BOD5	.15	.07	.15	.30	.15	.30
TSS	.17	.10	.17	.35	.18	.35
O&G	.10	.05	.10	.10	.10	.10

(b) For a processor which does by-product rendering
(C) For a processor which does conduct further processing

Subcategory - N

BOD_5	no limitation
TSS	no limitation
Oil & Grease	no limitation
pH	no limitation
Fecal Coliform	no limitation

Subcategory - O

BOD_5	no limitation
TSS	no limitation
Oil & Grease	no limitation
pH	no limitation
Fecal Coliform	no limitation

Economic Impact:

Not all of the economic impact information was included with the Proposed Rule-Making Package. It is stated that the Office of Planning and Evaluation Economic Analysis Branch should be contacted (Mr. Richard Stevenson x52887).

Example:*
Chicken (Medium Plant Costs)

	Raw Waste mg/l	BPT mg/l	INVESTMENT COSTS BPT	BAT mg/l	INVESTMENT COSTS BAT
BOD_5	500	23	$172,000 (1)	15	$542,000 (1)
TSS	350	31	26,800 (2)	17	95,100 (2)
O & G	213	10	61,200 (3)	10	237,900 (3)
NH_3	11.6	-		4	

*Data from Tables 16 and 17 of the D.D. and Tables I and II of this review.

(1) Additional Investment Cost
(2) Operating Cost
(3) Annual Cost

Comments and Recommendations:

1. The Development Documents should contain the necessary facts and figures to substantiate the Guidelines. As an example and there are many of what is not needed in the D.D. see Table 7 "Civilian Per Capita Consumption".

2. The figures like 1, 2, 3 should show more than just boxes. It would be well to show points of discharge and quantities of waste. With the large expenditures that have been made a D.D. should be a text book and a hand book.

3. In determining the flow per 1000 kg in Table 12 of the D.D. there may be something wrong with "range figures".

4. In the Proposed Amendments to the Regulations, Tab B, line 908, page 22, there is probably an error in the maximum for any one day BOD_5 limitation.

5. In the Proposed Amendments to the Regulations Tab B, line 1617, page 35, the max for one day should probably be .30 instead of .15.

6. Data supplied as Figure 4 in the D.D. is difficult to translate from per bird to per pound.

7. Figures 6, 7 do not show any flow volumes. The terms VSM, SM, MED, LGE used in figure 7 is very little help.

8. Some one should take the data given in Table 16 of the D.D. and show graphically the cost per unit of constituent removed for BPT and BAT. Off-hand it would appear to be a prohibitively high cost to attain BAT.

9. The need to remove ammonia to levels below 10 mg/1 is questioned.

10. How are the boundaries of small large and medium sized plants established? It has been said that a plant processing 24,000 chickens per day is classified as a small processor.

11. The practicality of ammonia stripping and ion exchange for poultry processing plants by 1983 is questioned.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

October 18, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the proposed guidelines for the Paving and Roofing Materials (Tars and Asphalt) Point Source Category. Group II, Phase I.

FROM : Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO : ES&WQIAC Office

PAVING AND ROOFING MATERIALS
POINT SOURCE CATEGORY
(TARS AND ASPHALT)

General Information:

The paving and roofing materials (tars and asphalt) category consists of approximately 5100 establishments which manufacture: (1) asphalt paving emulsions; (2) asphalt roofing emulsions; (3) asphalt concrete; (4) asphalt roofing materials; (5) linoleum floor coverings; and (6) printed asphalt felt floor coverings.

Status of Wastewater Treatment

	Approx. # of Plants	Meeting 1977 Stands.*	Meeting 1983 Stands.*	Using Municipal Sewer Sys.	With Little or no Treatment
Asphalt Emulsion	50	18+	8*	25	7
Asphalt Concrete	3600**	3100+	3100#	None Known	500
Asphalt Roofing	225	46+	25#	158	21
Linoleum & Printed Felt	20++				20

+ Industry - provided estimate
* Included in total for 1977 Standards
** An additional 1200 plants do not use water in processing
++ Only one plant is known to produce linoleum
* See atandards Section III of Development Document

Subcategories:

A. Asphalt Emulsion
B. Asphalt Concrete
C. Asphalt Roofing
D. Linoleum and Printed Asphalt Felt

Raw Waste Loads:

In the Asphalt Emulsion Plants the major water use is for cooling pumps and process controls. It is said that the water is generally non contact in nature and is, therefore, relatively pollutant free. Runoff caused by precipitation is the only known source of contaminated water. It contains oils at a maximum concentration of 50 mg/l.

In the Asphalt Concrete Plants water is only used in various types of water scrubbers that are employed to collect dust given off during drying and mixing operations. The characteristics of the raw wastewater were developed from reported data and from telephone conversations. The average flow per 1000 pounds is 15 gal./1000 #s. The data provided shows:

Total Solids	14568 mg/l	15.19 lbs./1000 #s
Total Suspended Solids	13876 mg/l	14.47 lbs./1000 #s
Alkalinity	420 mg/l	.44 lbs./1000 #s

The nature of the solids content is said to vary with the geographic location. If a carbonate-type of rock is used, the amount of solids collected in the Wastewater will be higher than if igneous rock is used. If limestone rock is used the pH value will be high.

There is something wrong with the figures shown in lines 1544 through 1551.

For the production of Asphalt Roofing, it is reported that 0.15 MGD of water is used in the production of 500 tons per day or 150 gals./1000 #s. The data provided shows:

Parameter	mg/l	#s/1000 #s
BOD_5	12.3	.0154
Total Solids	546	.6830
Total Dissolved Solids	277	.3465
Total Suspended Solids	184	.2302
Oil - Grease	15.4	.0193

The raw waste load reported for the Linoleum and Printed Asphalt Felt Plants is as follows:

Parameter	mg/l	#s/1000 #s
BOD_5	8	.0067
Total Solids	470	.3920
Total Suspended Solids	11	.0092
Total Nitrogen	1.3	.0011
Phenols	0.02	.00002

With a flow of 100 gal./1000 #s

Table I shows the flow per 1000 pounds of product as computed from Table 9 of the Draft Development Document.

TABLE I

Data Calculated from the Draft Development Document

Gal./1000 #s

	Small	Medium	Large	Average
A	12.5	41.5	50	34.7
B	200	65.5	35	100.2
C	250	150	178.5	192.8
D	66.5	100	111	92.5

The information shown in Table I is quite different from similar data in the Development Document for the Proposed Guidelines.

Treatment Technologies:

Reduction of raw waste loads, it is said, can be accomplished by in-plant controls, water recycling and well designed external treatment facilities.

Sedimentation and various auxiliary operations yield an effluent that has a low pollution potential.

It is said, in the Development Document that treatment beyond sedimentation and oil control is not necessary for wastes from this industry.

It has been found that approximately 3100 plants in this industry are considering, developing, or implementing the complete recirculation of wastewaters.

Economic Impact:

It has been estimated that 10 to 15 of the smaller plants in the asphalt concrete segment may close. The closings would possibly put 50 employees out of the industry. It has been said that there should be no significant impact on the local communities.

Effluent Limitations:

(See Tables II and II)

Comments and Recommendations:

1. The figures shown in The Development Document lines 1544 through 1548 do not check with the information shown in lines 1550 through 1551.

2. It does not seem realistic to place limitations on the Asphalt Emulsion Subcategory when there is reported to be no flow except for stormwater. How does the control agency determine compliance or violation?

3. Why is the Limitation for the linoleum and Printed Asphalt Tile Subcategory higher than the TSS raw waste? Does this indicate inadequate information on which to base a reasonable limitation?

4. Limitations for Subcategories C and D seem to be reasonable.

5. The information in Table 9 of the Draft Development Document of April 1974 does not appear in the Development Document for the Proposed Guidelines. Why?

6. It would appear that considerable editing and correction is necessary before promulgation of this guideline.

7. Are there any Tables that should be considered for the Development Document for the Proposed Guidelines?

cc: Director, Effluent Guidelines Division

TABLE II
EFFLUENT LIMITATIONS
PAVING & ROOFING (TARS & ASPHALTS

SUB-CATEGORY / CONSTITUENT	BPT ← mg/l → MAX DAY	AVG 30 DAYS	NO DISCHARGE	BAT ← mg/l → MAX DAY	AVG. 30 DAYS	NO DISCHARGE	N.S. ← mg/l → MAX DAY	AVG. 30 DAY	NO DISCHARGE
A									
OIL-GREASE	.167*	.125*	—	.125*	.083*	—	.125*	.083*	—
TOTAL SUSP. SOL	—	—	—	.188*	.125*	—	.188*	.125*	—
B									
TSS			X			X			X
O-G			X			X			X
C									
TSS	45	30	—	22	15	—	22	15	—
D									
TSS	46	30	—	23	16	—	23	16	—

* Pounds per 1000 pounds.

pH limitations for all subcategories discharging wastes are 6.0 to 9.0.

TABLE III
PERCENT REMOVALS

A			
O-G	no raw waste load data		
TSS	no raw waste load data		
B			
TSS	100	100	100
O-G	100	100	100
C			
TSS	83.70	91.85	91.85
D			
TSS	0	0	0

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

October 30, 197[illegible]

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the Amendment of the Preserved Seafood Processing Point Source Category Subparts A through N Part 408 (promulgated June 26, 1974) to expand the applicability thereof; and by adding thereto nineteen new Subcategories.

FROM : Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO : ES&WQIAC Office

CANNED AND PRESERVED SEAFOOD PROCESSING
Amendments to Subparts A through N
and
The Addition of Nineteen New Subcategories

General Information:

The effluent limitations promulgated June 26, 1974 limited the guidelines to those plants processing any combination of catfish, crab, shrimp, or tuna providing that the total throughput of these commodities amounts to 80 percent or more of the plant's seasonal or yearly production. At the time of promulgation the EPA had not been able to determine satisfactorily the possible economic impact of extending the guidelines to cover all plants which process some percentage of Phase I species but also process significant quantities of Phase II species. The current economic impact analysis indicates that the Phase I and Phase II effluent limitations may apply to any facility processing a commodity encompassed by the regulations without need for a product-mix or percentage throughput constraint.

The agency now proposes to expand the applicability of the guidelines to multi-product plants which were previously excluded.

The per capita consumption of fish and shellfish in 1972 was 12.2 lbs; totaling 1,250,000 tons in the United States. The total value of these products in 1972, including animal feed and other by-products, was

$2.3 billion, 23 percent above 1971.

Tab C from the Rule-Making Package is presented and it provides information on the number of plants, estimated direct dischargers, estimated percent with screening in place and nature of BPT.

Subcategories: (Subparts)

Amendments for -

A. Farm Raised Catfish Processing
B. Conventional Blue Crab Processing
C. Mechanized Blue Crab Processing
D. Non-Remote Alaskan Crab Meat Processing
E. Remote Alaskan Crab Meat Processing
F. Non-Remote Alaskan Whole Crab & Crab Section Processing
H. Dungeness and Tanner Crab Processing in the Contiguous States
I. Non-Remote Alaskan Shrimp Processing
J. Remote Alaskan Shrimp Processing
K. Northern Shrimp Processing
L. Southern Non-Breaded Shrimp Processing in the Contiguous States
M. Breaded Shrimp Processing
N. Tuna Processing

Additions to expand the applicability -

O. Fish Meal Processing
P. Alaskan Hand-butchered Salmon Processing
Q. Alaskan Mechanized Salmon Processing
R. West Coast Hand-butchered Salmon Processing
S. West Coast Mechanized Salmon Processing
T. Alaskan Bottom Fish Processing
U. Non-Alaskan Conventional Bottom Fish Processing
V. Non-Alaskan Mechanized Bottom Fish Processing
W. Hand-Shucked Clam Processing
X. Mechanized Clam Processing
Y. Pacific Coast Hand-Shucked Oyster Processing
Z. Atlantic and Gulf Coast Hand-Shucked Oyster Processing
AA. Steamed/Canned Oyster Processing
AB. Sardine Processing
AC. Alaskan Scallop Processing
AD. Alaskan Herring Fillet Processing
AF Non-Alaskan Herring Fillet Processing
AG. Abalone Processing

Raw Waste Loads:

(See Table I)

Tab C. Profile of the Fish Meal, Salmon, Bottom Fish, Clam, Oyster, Sardine, Scallop, Herring, and Abalone Segment of the Canned and Preserved Seafood Processing Point Source Category

	Subcategory	No. of Plants	Estimated % Direct Discharges	Estimated % with Screening in Place	Nature of BPT*
O	Fish Meal				
	1. w/solubles	16	80	0	no additional treatment
	2. w/o solubles	6	40	80	barge
P&Q	Alaskan salmon				
	1. non-remote	18	100	10	screen
	2. remote	69	100	0	grind solids
R	West Coast hand butchered salmon	1	100	100	screen
S	West Coast mechanized salmon	9	70	50	DAF for large plants screen for small plants
T	Alaskan bottom fish	3	0	0	screen (grind solids for remote Ak)
U	Non-Alaskan Con Bottom Fish	128	65	20	screen
V	Non-Alaskan Mech Bottom Fish	14	65	20	screen
W	Hand-shucked Clam	60	100	0	screen
X	Mech Clam	7	70	5	screen
Y	Pacific Coast hand shucked Oysters	32	100	0	screen

		No. of Plants	Estimated % Direct Discharges	Estimated % with Screening in Place	Nature of BPT*
Z	East & Gulf Coast hand-shucked Oysters	338	100	0	screen
AA	Steamed/Canned Oysters	10**	100	0	screen
AB	Sardine	17	85	80	DAF for part of effluent screen for remainder
AC & AD	Scallops	10**	100	20	screen (grind solids for remote Al
AE & AF	Herring Fillet	4**	100	25	screen (grind solids for remote Al
AG	Abalone	5	20	60	screen

---

* Technology is based on current practice, except for DAF which is based on demonstration plants. The principal pollutant parameters monitored are BOD5, TSS, oil and grease, and pH. Particle size is monitored for the remote Alaskan plants.

** Estimate

Tab C (continued). Profile of Miscellaneous Plants (Below the Phase I 80 Percent Criteria)

	Subcategory	No. of Plants	Estimated % Direct Discharge	Estimated % with Screening in Place	Nature of BPT*
U	Non Alaskan Con Bottomfish	12	65	20	screening
V	Non Alaskan Mechanized Bottomfish	5	65	20	screening
W	Hand-shucked Clams	10	100	0	screening
X	Mechanized Clams	3	70	5	screening
Z	East & Gulf Coast Hand-shucked Oysters	29	100	0	screening
B	Blue Crab	16	80	0	screening
A	Catfish	8	80	0	screening
K,L,M	Shrimp	27	85	0	screening

*Technology is based on current practice. The principal pollutant parameters monitored (for screening systems) are TSS, oil and grease, and pH.

TABLE I

RAW WASTE LOADS

CANNED AND PRESERVED FISH & SEAFOODS PROCESSING

APPROVED FOR USE IN PURDUE UNIVERSITY

PLANTS SAMPLED	SUBCATEGORY	GALLONS PER TON MEAN	99% MAXIMUM	mg/l BOD MEAN	99% MAX	TSS		OIL & GREASE		PI
4	O ①	8856	9942	1766	2208	96.8	1636	770	2099	
		8400	9340	84.4	133	26.2	66.1	16.0	22.9	6.0
2	②	456	602	32700	45700	18300	5450	12000	41600	6.8
6	P	976	1240	534	686	305	429	38.6	50.8	6.73
4	Q	4440	5470	2750	3670	1100	1480	351	1430	6.71
	R									
	S									
2	T	1490	1680	321	368	259	304	13.4	17.4	6.59
13	U	1270	1440	633	901	271	396	66.4	105	6.79
3	V	3240	5290	878	[illegible]	659	1010	183	421	7.29
3	W	886	1750	1543	3080	3680	8110	38.1	77.0	6.99
3	X	5050	5330	648	732	260	364	21.1	26.0	6.73
4	Y	13300	13400	432	450	620	661	28.1	30.5	6.82
5	Z	7820	8550	455	541	416	579	20.4	23.7	7.09
3	AA	15600	18200	476	810	445	821	17.4	25.3	6.98
2	AB ③	2100	2250	2750	3420	805	1140	546	1110	6.40
2	④	42.2	42.2	30000	37600	8790	24200	10700	22700	6.20
2	⑤	1650	1780	578	722	276	333	86.8	247	6.57
2	AC	2810	4230	244	427	45.0	70.3	13.5	53.9	6.86
2	AE AF	1940	2020	3950	5820	2790	3120	755	1040	6.91
2	AG	8570	10700	478	653	234	306	25.1	35.8	7.18

① Solubles plant discharge only
② Without solubles plant
③ Combined discharge
④ Can wash and pre-cook water
⑤ Operations for screening discharge

Treatment Technologies:

- Reduced Use of Water
- Recycling
- Process changes
- Utilization of the Entire Seafood
- Dry Solids Transportation
- Solids Waste Reduction
- Screening
- Sedimentation
- Coagulation
- Physical-Chemical Treatment
- Chemical Oxidation
- Air Flotation
- Activated Sludge
- Rotating Biological Contractor
- High-Rate Trickling Filter
- Ponds and Lagoons
- Land Disposal

Effluent Limitations:

(See attached Tables II and III)

Economic Impact:

The Economic Study reports on 851 Seafood Processing Plants. The investment to attain BPT is reported to be $14,940,800 with an annual cost of $3,240,000. For attaining BAT the investment cost was estimated to be $40,787,900 with an annual cost of $7,259,800.

BPT limitation will threaten 145 plants with an expected 57 closures. BAT will probably threaten 67 plants with 176 possible closures.

Comments and Recommendations:

1. The description of fish meal plants in the Development Document is entirely unsatisfactory. It is impossible to determine what is meant by: "With solubles plant", "Without solubles plant", "Solubles plant discharge only".

2. There does not appear to be any raw waste load data for Subcategories R and S.

3. It would appear that there has been a change of philosophy or the interpretation of PL 92-500 when as in Subcategory U a BAT limitation of 111 mg/l BOD_5 is permitted which is only an 87% removal.

4. Limitations based on Remote and Non-Remote locations appears to be basing limitations on the receiving waters rather than on the effluents that can be obtained with BPT and BAT. This philosophy is reasonable but it has not been followed in many of the other guidelines.

5. Will the change in philosophy or interpretation of the law necessitate a revamping of all guidelines that do not reflect the liberalized interpretation?

6. Why are there no figures on the raw waste load for Subcategory AD?

7. Why are there Subcategories AE and AF when the limitations in mg/l appear to be the same?

8. The oil and grease limitations for Subcategory U, BAT and New Sources are questioned because they appear to be lower than the minimum value that is reproducable.

9. A BAT limitation of 702 mg/l of BOD for Subcategory Q is questioned because this is about the raw waste concentration for food processing and dairy wastes.

10. What would a judge or jury do if they were asked to decide the reasonableness of the very broad range of effluent limitations being proposed for this industry?

11. How does one rationalize the oil and grease limitations for BAT and New Sources for Subcategories X,Y,Z and AA when the value is below the concentration that is readily reproduced in the laboratory?

12. It is difficult to believe that a raw waste load concentration of BOD for Subcategory AA of 476 mg/l can not be reduced to less than 80 mg/l (the suggested limitation) by present day practicable control technology.

13. Extensive study must be given the limitations in all Categories and Subcategories to make sure that they are equatable in All cases.

cc: Director, Effluent Guidelines Division

TABLE II

EFFLUENT LIMITATIONS

SUBCATEGORY PARAMETER	BPT		BAT		N.S.		L/KKG	
	MAX DAY	30 DAY AVG.	MAX DAY	30 DAY AVG	MAX DAY	30 DAY AVG.		
O								
BOD5							36900	41510
TSS								
O&G								
P								
BOD5	–	–	–	–	–	–	3960	4750
TSS	429	354	379	303	379	303		
O&G	51	43	45	38	45	38		
Q								
BOD5	–	–	864	702	2106	1728	18500	
TSS	1458	1163	140	119	427	351		
O&G	1458	540	140	54	205	81		
R								
BOD5								
TSS								
O&G								
S								
BOD5								
TSS								
O&G								
T								
BOD5	–	–	–	–	–	–	6230	
TSS	305	273	176	161	177	161		
O&G	17	14	11	10	11	10		
U								
BOD5	–	–	139	111	139	111	5240	
TSS	401	305	286	139	286	139		
O&G	105	76	8	6	8	6		
V								
BOD5	–	–	481	392	673	548	13500	
TSS	1036	740	81	61	244	185		
O&G	422	244	34	19	50	29		

APPROVED FOR USE IN
PURDUE UNIVERSITY

TABLE II
(CONT)

W							3700
TSS	8106	5133	7836	4864	7836	4864	
O&G	78	51	76	49	76	49	
X							21100
BOD5	—	—	137	128	137	128	
TSS	364	289	350	175	350	175	
O&G	26	23	9	4	9	4	
Y							55300
BOD5	—	—	65	63	65	63	
TSS	666	630	157	149	157	149	
O&G	31	29	14	5	14	5	
Z							32600
BOD5	—	—	77	70	77	70	
TSS	581	459	138	70	138	110	
O&G	24	21	14	5	14	5	
AA							65100
BOD5	—	—	113	80	113	80	
TSS	826	551	337	168	337	168	
O&G	24	20	9	4	9	4	
AB							3640
BOD5	2088	1813	1456	1264	1950	1703	
TSS	489	742	604	494	797	577	
O&G	632	330	467	239	494	266	
AC							11700
TSS	70	53	68	51	68	51	
O&G	54	27	53	26	53	26	
AD							
TSS							
O&G							
AE							8090
BOD5	—	—	1063	828	2596	1978	
TSS	3070	2966	235	210	692	643	
O&G	1038	853	383	148	408	173	

TABLE II
(CONT.)

	AF							8090	
	BOD5	—	—	1063	828	2596	1978		
	TSS	3090	2966	235	210	692	643		
	O&G	1038	853	383	148	408	173		
	AG							35700	
	TSS	308	258	280	244	280	244		
	O&G	34	27	31	26	31	26		

TABLE III

PERCENT REMOVALS

CANNED AND PRESERVED FISH AND SEAFOODS

SUBCATEGORY CONSTITUENT	BPT	BAT	N.S.
O			
BOD5			
TSS			
O&G			
P			
TSS	17	29	29
O&G	15	25	25
Q			
BOD5	—	74	37
TSS	0	89	68
O&G	0	95	77
R			
BOD5			
TSS			
O&G			
S			
BOD5			
TSS			
O&G			
T			
TSS	0	33	58
O&G	0	25	25
U			
BOD5	0	87	87
TSS	54	79	79
O&G	58	97	47
V			
BOD5	—	55	38
TSS	0	41	72
O&G	0	90	84

TABLE III
(CONT.)

	BPT	BAT	N.S.
W			
TSS	37	40	40
O&G	34	36	36
X			
BOD5	—	80	80
TSS	0	33	33
O&G	12	85	85
Y			
BOD5	—	85	85
TSS	0	76	76
O&G	0	82	82
Z			
BOD5	—	85	85
TSS	0	83	74
O&G	0	75	75
AA			
BOD5	—	83	83
TSS	0	62	62
O&G	0	77	77
AB			
BOD5	34	54	38
TSS	8	39	28
O&G	40	56	51
AC			
TSS	0	0	0
O&G	0	0	0
AD			
TSS			
O&G			
AE			
BOD5	—	79	50
TSS	0	92	77
O&G	0	80	77

TABLE III
(CONT.)

AF					
BcD5			—	79	50
TSS			0	92	77
O&G			0	80	77
AG					
TSS			0	0	0
O&G			0	0	0

PURDUE UNIVERSITY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

January 11, 1975

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the Proposed Regulations for the Canned and Preserved Seafood Processing.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

CANNED AND PRESERVED SEAFOOD PROCESSING

General Information:

There is difficulty in trying to keep the processing of documents that appear in the preparation of the Final Guidelines without first hand knowledge of the situation.

The statement made by the title that appears with this document is not clear. The "issue" is not completely understandable. It is stated as follows: "Proposal to amend the effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources wihtin the Canned and Preserved Seafood Processing point source category by adding thereto nineteen new Subcategories and by amending the promulgated regulations to expand the applicability thereof and to amend the standards of performance for new sources in remote areas of Alaska".

A docuemnt was reviewed by ES&WQIAC member Bloodgood on about Oct. 25, that dealt with the Subcategories O through AG.

Subcategories:

O through AG, establishing limitations guidelines and standards of performance for new sources and pretreatment standards for existing and new sources.

A through N, amends promulgated effluent limitations guidelines and standards of performance and pretreatment standards for new sources.

E, G and J, revises the promulgated regulations to amend the standards of performance for new sources in remote areas of Alaska.

Economic Impact:

An estimated 57 out of 844 (6.75%) plants may close because of the 1977 standards. An estimated 750 full time and seasonal jobs may be affected by the plant closures. The 1983 standards may affect an additional 82 plants and 2480 full time and seasonal jobs. Thus 16.5% of the plants will be out of business as a result of the guidelines limitations.

Changes in Guidelines:

1. The estimated treatment costs will severely impact the very small processors within several Subcategories, Subcategory U, Subcategory W, Subcategory Y, and Subcatefory Z. Therefore, the guidelines have been written with exclusion of plants of defined production volumes.

Subcategory U. - 1816 kg (4000 lbs.) Non-Alaskan Conventional Bottom Fish

Subcategory W. - 1816 kg (4000 lbs.) Hand-Scucked Clams

Subcategory Y. - 454 kg (1000 lbs.) Pacific-Coast Hand-Schucked Oysters

Subcategory Z. - 454 kg (1000 lbs.) East and Gulf Coast Hand-Schucked Oysters

2. Revision of Subcategories (Subparts) A through N. The guidelines are expanded to include multi-products plants which had previously been excluded from coverage.

3. Revision of Subcategories (Subparts) E, G, and J. It is proposed that the guidelines be amended so that new source performance standards will be met with comminutors or grinders instead of screening.

Comments and Recommendations:

1. The Development Document is not adequately keyed to the Guidelines Proposed or Draft Promulgated. Tables 20,21,24,25,27,28,30,31,32,33,34,35,36, 37,38,39,40 do not show the Subcategory to which the data in the tables applies.

2. Refer to the ES&WQIAC report of approximately October 25, 1974 for comments that might not have been considered.

3. The Impact Statement does not show the Subcategories covered by the statements.

4. Were the weights for designating large and small plants for Subcategories U,W,Y and Z chosen arbitarily?

5. Will the division into small and large plants Subcategories tend to disperse processors into small operations?

6. Will the benefits derived by discharge controlls off-set the impact resulting from closing 6.75 to 16.5% of the industry?

7. There seems to be no need for comment or question about the revisions for Subcategories A through N by the inclusion of multi-product plants.

8. The revision of Subcategories E, G and J that permits comminution or grinding instead of screening for new sources probably is the reasonable thing to do but the benefit derived from grinding to a 0.5 inch size particle is very questionable.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December 20, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the Proposed Guideline Limitations for the Ferroalloy Industry.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

FERROALLOY INDUSTRY
Subcategories E, F and G

General Information:

The following paragraphs are from the action memorandum accompanying the Rule-Making Package.

Calcium Carbide

Five plants are now operating in the calcium carbide industry. Another large plant has not been operated for some time, although it is projected that it will be resuming operations in the near future. Two of the plants account for about 80% of the total industry capacity. The primary pollution problem is atmospheric emissions from the smelting operation, and use of wet scrubbers to clear up the emissions causes a water pollution problem in turn. Two plants are presently using wet air pollution devices, but one of these achieves no discharge by completely recirculating all scrubber waste water. The other is presently utilizing water for gas scrubbing on a once-through basis and will feel most or all of the economic impact of these regulations. Another plant is planning to install venturi scrubbers on covered furnaces with discharge of blowdown from the recirculation system to a municipal sewer. Four of the five plants presently have no process water discharge except for non-contact cooling water. The major parameters present in process waste water are suspended solids, cyanide and pH. Water amounts to approximately 1800 gallons per ton. The other plant, which will discharge to a municipal sewer system, projects a usage rate of 312 gallons per ton. This compares to a water usage rate of 15,000 gallons per ton for non-contact cooling. The plants are scattered around the United States, and although they vary in age form 5 to 26 years, the production process is the same for all and the only difference encountered (as far as waste load) is their use of wet or dry air pollution control methods. Total production last year amounted to approximately 350,000 tons.

Electrolytic Ferroalloys

Four plants are now operating in the electrolytic ferroalloys industry. One plant produces electrolytic managnese, electrolytic chromium and electrolytic manganese dioxide, while the others produce only manganese or chromium. The electrolytic manganese plants are approximately equal in size, while the chromium plants are somewhat smaller. The plants are predominatly in the South and vary in age from 6 months to over 20 years. Major parameters present in the wastewaters are suspended solids, ammonia, pH, manganese, and chromium. Water usage varies from 4000 gal/ton to about 36,000 gal/ton. Water discharged varies greatly according to plant age--newer plants, designed with good housekeeping and recirculation of process water in mind (partially for economic reasons) have lower effluent volumes than do the older plants. However, plant age was not considered for a basis for categorization. The use of wastewater constituents is a more rational approach for this segment than plant age, since the treatment technologies for the wastewater constituents are the same regardless of plant age.

The industry asked that the calcium carbide operations be placed within the ferroalloy industry rather than in the inorganic chemicals industry.

Subcategories:

Subcategory D - Covered Calcium Carbide Furnaces with Wet Air Pollution Control Devices
Subcategory E - Other Calcium Carbide Furnaces
Subcategory F - Electrolytic Manganese Products
Subcategory G - Electrolytic Chromium

Raw Waste Loads:

The Draft Development Documents are in two sections, one for the Calcium Carbide Segment and the other for Electrolytic Ferroalloys Segment.

Calcium Carbide Segment

Five pages of the Development Document are devoted to a miscellaneous collection of data expressed in several different units making it almost impossible for a reader to determine what is a reasonable raw waste load. The action memorandum says that the "Water usage amounts to approximately 1800 gallons per ton".

The major parameters in the wastewater are said to be suspended solids, cyanide and pH.

Electric Ferroalloys Segment

Four pages of the Development Document are devoted to waste characteristics and it is impossible to find the flow rates that must have existed in order to establish the methods of treatment and the effluent characteristics.

Treatment Technology:

Calcium Carbide:

1. Settling Ponds
2. Clarifiers & Thickners
3. Filtration
4. Centrifuging
5. Coagulation
6. Dissolved Materials Treatment
7. Chemical Treatment
8. Neutralization
9. Oxidation, Cyanides
10. Alkaline Chlorination
11. Hypochlorite Oxidation
12. Evaporation
13. Drying
14. Rainwater Runoff
15. Unlined Ponds
16. Lined Ponds
17. Municipal Sewers

Electrolytic Ferroalloys:

1. Settling Lagoons
2. Oxidation Ponds
3. Evaporation Ponds
4. Physical/Chemical Treatment
5. Neutralization
6. Ammonic Stripping
7. Breakpoint Chlorination
8. Alkaline Precipitation
9. Clarification-Flocculation
10. Recirculation of Wastewater
11. Solid Waste Disposal

Economic Impact:

The statements regarding the economic impact are not sufficiently clear so that an opinion on reasonableness can be formed.

The Economic Information is missing in the Rule-Making Package and is to be inserted by OPE.

Effluent Limitations:

The effluent limitations proposed are shown in Table I.

Recommendations and Comments:

1. The Development Document should be revised to give the raw waste loads considered in the publication of the effluent limitations.

2. The rationalle used, in determining that the limitations for New Sources for Subcategories D, F(a) and G should be more strict than for BAT, is most difficult to understand.

3. None of the figures in the Development Document for Electrolytic Ferroalloys show water usage. These figures for flow must be available or estimated in order to come up with the limitations given in the Proposed Guidelines. Why are they so well hidden?

4. The Development Documents must be written with the Guidelines in mind. The paragraph in the DD starting with line 1477 Electrolytic Manganese Products must be rewritten to give the Subcategory designation and BPT, BAT, and New Source references as they are used in the Guidelines.

5. Figure 8 of the DD for Electric Manganese has been noted. Where do the percent reduction figures come from and how were they obtained? To obtain the cost of treatment does one add the costs of removal for the several constituents?

Ammonia	65% removal	$ 12.72	per ton
Suspended Solids	99% removal	9.75	per ton
	TOTAL	$ 22.47	

Do the annual costs include some capital cost?

6. Major revisions will have to be made in the Development Documents and the Proposed Guidelines before they can be considered to be suitable for final publication.

cc: Director, Effluent Guidelines Division

FORM K
APPROVED FOR USE IN
PURDUE UNIVERSITY

TABLE I
EFFLUENT LIMITATIONS PROPOSED
FERROALLOY INDUSTRY

	BPT		BAT		NEW SOURCE	
	Max Day	30 Day Avg	Max Day	30 Day Avg	Max Day	30 Day Avg
Subcategory D						
TSS	.280	.190	.22	.11	.240	.060
T. Cyanide	.0056	.0028	.0056	.0028	.001	.0005
pH	6.0 to 9.0		6.0 to 9.0		6.0 to 9.0	
Subcategory E	no discharge		no discharge		no discharge	
Subcategory F						
(a) TSS	6.778	3.389	3.389	1.695	1.481	0.740
Manganese	2.711	1.356	0.678	0.339	0.296	0.148
Ammonia	40.667	20.334	6.778	3.389	2.961	1.481
pH						
(b) TSS	1.762	0.881	0.881	0.441	0.881	0.441
Manganese	0.705	0.352	0.176	0.088	0.176	0.088
Ammonia	10.574	5.287	1.762	.881	1.762	0.881
pH	6.0 to 9.0		6.0 to 9.0		6.0 to 9.0	
Subcategory G						
TSS	5.276	2.638	2.649	1.324	0.834	0.417
Manganese	2.111	1.055	0.530	0.265	0.167	0.083
Chromium	0.106	0.053	0.053	0.027	0.017	0.008
Ammonia N	10.553	5.276	5.297	2.649	1.668	0.834
pH	6.0 to 9.0		6.0 to 9.0		6.0 to 9.0	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

January 23, 1975

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the draft interim final Effluent Limitations Guidelines for the Ferroalloy Industry.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

FERROALLOY POINT SOURCE
Subcategories D, E, F, and G

General Information:

These are amendments of the effluent limitations guidelines for existing sources and standards for this industry by adding four new Subcategories.

Five plants are now operating in the calcium carbide industry. One other large plant has not been operated for some time but it is expected that it will resume operations in the future. Two of the plants account for about 80% of the total industry capacity.

Four plants are now operating in the electrolytic ferroalloy industry. One plant produces electrolytic manganese, electrolytic chromium and electrolytic manganses dioxide, while the others produce only manganese or chromium.

A report was prepared by ES&WQIAC on the Rule-Making Package for the proposed guidelines, on about December 20, 1974. Reference should be made to it.

Subcategories:

D. Covered Calcium Carbide Furnaces with Wet Air Pollution Control Devices
E. Other Calcium Carbide Furnaces
F. Electrolytic Manganese Products
G. Electrolytic Chromium

This is the same Subcategorization that was included in the proposed guidelines.

Raw Waste Loads:

The development documents are still in two sections. One for Calcium Carbide and one for Electrolytic Ferroalloys.

There is an absence of clear cut data on flows for the two segments of the ferroalloy category. In addition the information on raw waste loads is not adequately shown in the guidelines or the development documents. Someone had to have this information at some time in the development of the limitations.

Effluent Limitations:

Subcategory D.

	BPT		BAT	
	Max. Day	30 Day Avg.	Max. Day	30 Day Avg.
TSS	0.380	0.190	.22	.11
Total Cyanide	.0056	.0028	.0056	.0028
pH	6 to 9		6 to 9	

	BPT		BAT	
Subcategory E.	no discharge		no discharge	

Subcategory F.

(a)	BPT		BAT	
TSS	6.778	3.389	3.389	1.695
Manganese	2.771	1.356	.678	.339
Ammonia N	40.667	20.334	6.778	3.389
pH b	6 to 9			

(b)	BPT		BAT	
TSS	1.762	0.881	.881	.441
Manganese	0.705	0.352	.176	.088
Ammonia N	10.574	5.287	1.762	.881
pH	6 to 9		6 to 9	

Subcategory G.

	BPT		BAT	
	Max. Day	30 Day Avg.	Max. Day	30 Day Avg.
TSS	5.276	2.638	2.649	1.324
Manganese	2.111	1.055	.530	.265
Chromium	.106	0.053	.053	.027
Ammonia N	10.553	5.276	5.297	2.649
pH	6 to 9		6 to 9	

Proposed amendments for pretreatment standards for existing sources, performance of new sources, and pretreatment standards for new sources.

Subcategory D.

	Pretreatment Existing Sources		Performance New Sources		Pretreatment New Sources	
TSS	no limitation		.040	.020	no limitation	
pH	no limitation		6 to 9		no limitation	
Cyanide	0.5 mg/l		.001	.0005	0.5 mg/l	
Subcategory E.						
TSS	no limitation		no discharge		no limitation	
pH	no limitation		no discharge		no limitation	
Subcategory F.						
(a)						
Manganese	2.711	1.356	0.296	.148	2.711	1.356
Ammonia N	40.667	20.334	2.961	1.481	40.667	20.334
TSS	no limitation		1.481	.740	no limitation	
pH	no limitation		6 to 9		no limitation	
(b)						
Manganese	.705	.352	.176	.088	.705	.352
Ammonia N	10.574	5.287	1.762	.881	10.574	5.287
TSS	no limitation		.881	.441	no limitation	
pH	no limitation		6 to 9		no limitation	
Subcategory G.						
Manganese	2.111	1.055	.167	.083	2.111	1.055
Chromium	0.106	0.053	.017	.008	.106	.053
Ammonia N	10.553	5.276	1.668	.834	10.553	5.276
TSS	no limitation		.834	.417	no limitation	
pH	no limitation		6 to 9		no limitation	

Comments and Recommendations:

1. Reference to the December 20, 1974 comments and recommendations on the Rule-Making Package for the Proposed Guidelines for the ferroalloy category.

2. There is a great need for information on the raw waste flows and loadings for all Subcategories.

3. The effluent limitations brought out in the Rule-Making Package of the Proposed Guidelines are the same in the Interim Final Guidelines.

4. The term "no limitation" used in the guidelines for pretreatment of existing and new sources should be modified so that it correctly states the intended. It is not good practice to say that there is no limitation on pH of waste going to a municipal waste treatment plant.

5. The Development Documents are not keyed to the guidelines. Subcategories in the D.D. should be labeled with the same designations used in the guidelines.

6. The flow rates in Figure 3 of the D.D. for the Electrolytic Ferroalloy segment are meaningless unless the tons of product or raw material are shown.

7. The D.D. are far from being satisfactory guides in understanding the development of the guidelines.

cc: Director, Effluent Guidelines Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

January 25, 1975

MEMORANDUM

SUBJECT: Comments and Recommendations on the Rule-Making Package for the interim final Effluent Limitations Guidelines for the Cane Sugar Industry. Subcategories D, E, F, G and H.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

CANE SUGAR INDUSTRY

SUBCATEGORIES D, E, F, G AND H

General Information:

This interim final guideline has to do with the raw cane sugar processing in Hawaii, Texas, Louisiana, Puerto Rico and Florida.

There are approximately 75 plants that process sugar cane into raw sugar.

The main pollutants discharged by this industry are suspended solids and BOD.

All of the plants in Florida, Texas and Hawaii (excluding the Hilo-Hamakua Coast) are achieving zero discharge. The major portion of the raw sugar factories in Louisiana, Puerto Rico, and the Hilo-Hamakua Coast of Hawaii discharge directly to navigable waters.

Plants on the Hilo-Hamakua Coast are said to discharge high loadings of suspended solids and BOD directly to the ocean, and are in litigation on the effect of high loadings of suspended solids on coral and surrounding waters.

Representatives of the sugar factories located on the Hilo-Hamakua Coast contend that limitations on suspended solids are justified, but that the costly treatment for BOD is wasteful of resources.

Subcategories:

D. Louisiana Raw Cane Sugar Processing
E. Florida and Texas Raw Cane Sugar Processing
F. Hilo-Hamakua Coast of the Island of Hawaii Raw Cane Sugar Processing
G. Hawaiian Raw Cane Sugar Processing
H. Puerto Rican Raw Cane Sugar Processing

Raw Waste Loads:

	liters/metric ton
Subcategory I	20335
Subcategory II	19074
Subcategory III	18233
Subcategory IV	14312
Subcategory V	20900

Economic Impact:

COST ESTIMATES
MMS

	BPT		BAT	
	Capital	Total Yearly	Capital	Total Yearly
Subcategory				
D	$1.24 to 1.36	$0.385 to 0.629	$3.45 to 5.21	$0.687 to 1.04
E	0	0	0	0
F	$7.86 to 8.67	$2.76 to 3.50	$2.02 to ?	$.245 to .252
G	0	0	0	0
H	$2.24 to 2.36	$.332 to 0.641	$1.72 to ?	$.0101 to [illegible]
TOTAL	$11.34 to 12.39	$3.48 to 4.77	$7.19 to 8.96	$0.942 to 1.30

Effluent Limitations:

lbs./1000 lbs. of gross cane

	BPT				BAT			
	Max. Day		30 Day Avg.		Max. Day		30 Day Avg.	
Subcategory D								
(a)								
BOD_5	1.14	56	0.63	31	0.10	5	0.050	2.5
TSS	1.41	69	0.47	23	0.24	12	0.080	3.9
pH	6 to 9				6 to 9			
(b)								
BOD_5			0.63				0.50	
TSS			0.47				0.80	
pH	6 to 9				6 to 9			

	BPT		BAT	
	Max.Day	30 Day Avg.	Max. Day	30 Day Avg.
Subcategory E	no discharge		no discharge	
Subcategory F	lb/1000 lb. of net cane			
BOD_5	no limitation		1.52(1-x)+.022	0.76(1-x)+.011
TSS	4.2 230	2.1 115	3.03(1-x)+.030	1.01(1-x)+.010
pH	6 to 9		6 to 9	
Subcategory G	no discharge		no discharge	
Subcategory H				
(a)				
BOD_5	1.14 55	0.63 30	0.10 417	.050 2.4
TSS	1.41 67	0.47 22	0.24 11.5	.080 3.8
pH	6 to 9		6 to 9	
(b)*				
BOD_5		.63		.050
TSS		.47		.080
pH	6 to 9		6 to 9	

(b) Any cane sugar factory employing waste stabilization where all or a portion of the wastewater discharge is stored for the entire grinding season shall meet the limitations shown.

* The total of the daily values for the entire discharge period shall not exceed the values shown.

Comments and Recommendations:

1. The Subcategory designation (I) on page 11 of the Development Document does not correspond with the Subcategory designations in the Guidelines.

2. The D.D. contains so much extraneous information and data and so little about the actual wastes and the treatment of them.

3. Where in the D.D. are the definitions of the Subcategories?

4. Where is the Table of Contents for the D.D.?

5. The Economic Information lists the Subcategories as I, II, III, IV and V but describes them as in the Guideline, D, E, F, G and H.

6. Guidelines, line 522 to line 533 what are the missing values that make up the $8.96 total?

7. What does "The total of the daily values for the entire discharge period shall not exceed" the values shown, really mean? The words used do not have the probable intended meaning. See Subcategory H(b) limitations.

8. The guidelines do not seem to show the meaning of the formula shown in the BAT limitations for Subcategory F. The guidelines show the letters in the parenthesis as L & X, the D.D. shows a one and X.

9. Considerable revision of the D.D. is needed before it is a real supplement of the Guidelines.

10. It is presumed that somewhere in the documents there is an indication that there will be a reduction in the flow discharged at the BAT limit over the flow at the BPT limit. If there is no such proposal the effluent limitations for BOD_5 and TSS for Subcategories D and H cannot be attained for a reasonable cost.

11. In the Action Memorandum C(2) it says, "One commenter stated that experts in the field of oceanography and marine biology clearly indicate that BOD removal prior to open ocean disposal is wasteful of resources in that no benefit is derived from this removal." It is answered by refering to several paragraphs in the law and then interprets them. If the law is not reasonable, and it may not be, it should be changed before severe damage, or any damage is done to the economy and/or a wasteful loss of energy takes place.

cc: Director, Effluent Guidelines Division

COMMENTS & RECOMMENDATIONS
ON PRETREATMENT STANDARDS FOR EXISTING SOURCES

The following commends and recommendations by ES&WQIAC pertain to pretreatment standards for existing sources of water pollution in fourteen industrial categories.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

EFFLUENT STANDARDS AND WATER QUALITY
INFORMATION ADVISORY COMMITTEE

December 9, 1974

MEMORANDUM

SUBJECT: Comments and Recommendations on "Pretreatment Standards for Existing Sources.

FROM: Effluent Standards and Water Quality Information Advisory Committee, Member, Don E. Bloodgood

TO: ES&WQIAC Office

PRETREATMENT STANDARDS FOR EXISTING SOURCES

General Information:

The document reviewed was a computer copy of the material submitted for approval for promulgation.

The industries covered in the document are:

1. Dairy Products
2. Grain Mills
3. Canned and Preserved Fruits and Vegetables
4. Beet Sugar
5. Liquid and Crystalline Cane Sugar Refining
6. Cement Manufacturing
7. Feedlots
8. Organic Chemicals (except subcategory groups C2, C3 & C4)
9. Soap & Detergent Mfg. (except subparts O,P,Q & R)
10. Glass Mfg. (except subparts F and G)
11. Asbestos Manufacturing
12. Pulp, Paper, and Paperboard
13. Builders Paper and Roofing Felt
14. Meat

The several sections of the document are designated with the numbering system used for the categories and the paragraphs in the promulgated guidelines for Group I, Phase I Industries.

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It is assumed that the wastes considered are those that can be treated in municipal treatment plants. The following paragraph from the action memorandum accompanying the document under discussions is not entirely clear but it may be legally precise:

"The general pretreatment standard considers pollutants discharged by users of publicly owned treatment works in the two broad categories compatible and incompatible. Compatible pollutants generally are not subject to Federal pretreatment standards; however 40 CFR 128.131 (prohibited wastes) may be applicable to compatible pollutants. Additionally, local pretreatment requirements may apply (see 40 CFR 128.110). Incompatible pollutants generally are subject to pretreatment standards as provided in 40 CFR 128.133."

Comments and Recommendations:

1. The action memorandum from the Asst. Administrator for Water and Hazardous Materials to the Administrator regarding "Pretreatment Standards for Existing Sources" (my copy) did not have a completed paragraph on the first page and the second page was not a continuation of the first page. Was anything missed by not having this material?

2. The paragraph in the action memorandum on economic impact, "The industrial categories and subcategories covered by this regulation will not be required to pretreat their waste water before discharging to a publicly owned treatment works. Therefore, there is no economic impact due to the promulgation of this regulation.", together with the regulations "no limitation" pretreatment, standard can be interpreted to the detriment of the municipality.

3. After more than 40 years of effort to get industries to discharge to municipal sewers waste loads that have been minimized by in-plant operation changes and pretreatments it is only right that I ask that this same philosophy not be abandoned by a guideline that does not encourage minimizing the waste loads discharged.

4. It is suggested that the Pretreatment Standard, "no limitation" be changed to:

   1. No Limit Designated
   2. Not Generally Limited or
   3. Not Specifically Limited

5. What is the basis for constituent parameter choice when the limitation is "no discharge"?

6. There should be some indication in the document that industries are expected to pay their proportionate cost of treatment of their wastes.

cc: Director, Effluent Guidelines Division

REVIEW OF DRAFT A. N. P. R. ON TOXIC SUBSTANCES

As discussed in Part I, ES&WQIAC reviewed and submitted comments to EPA on the Agency's advanced notice of proposed rule-making for toxic substances under Section 307 of PL 92-500.

The following report, which references the page and section of the ANPR together with the corresponding ES&WQIAC comments, resulted from the work of a special ES&WQIAC task force.

REVIEW OF DRAFT A.N.P.R. OF DEC. 17, 1974 by ES&WQIAC
ON A PAGE BY PAGE BASIS:

Page 3

"This Advance Notice of Proposed Rulemaking declares the intention of the Environmental Protection Agency to hold a series of technical symposia at Regional Offices, meeting the requirement for public participation of section 101(e), and to require information under authority of Section 308(2). The information gained from these symposia and the letters authorized by Section 308 will be considered along with other information and written comments as the Agency compiles the Statement of Basis and Purpose for the subsequent proposed rulemaking. Thirty days after publication of the proposed rule the required public hearing notice will be given and the hearing will be held shortly thereafter."

ES&WQIAC Comment: There is hope that ES&WQIAC, through input into its Committee meetings and possibly public hearings, will be able to augment the information that EPA expects to obtain through the series of technical symposia to be held at regional offices.

Page 9

"The public record [illegible] an al[illegible] that, even if adequate technology were available [illegible], operate treatment facilities capable of achieving [illegible], the task [illegible] completed within one year [illegible] the facility is already in compliance. A few individual representatives state that the standards could not be met in 3 or more years because treatment methods do not exist or have not yet been demonstrated that would meet the proposed standards. Others contended that application of available treatment technology capable of achieving proposed effluent limits was economically unfeasible."

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ES&WQIAC Comment: ES&WQIAC Committee meetings for the 1975-76 year will be concentrated on treatment technologies currently under development by industry to meet the BAT and zero pollutant discharge demands of PL 92-500 for 1983-85. Special seminars will be held in the fall of 1975 on treatment technology under development by industry for the reduction of chlorinated hydrocarbons; PCB's; Hg; cyanide and cadmium in industrial effluents.

Page 10

"The level of detection for nearly all substances (DDT, aldrin-dieldrin, benzidine, mercury, PCB's, and possibly toxaphene and endrin) was noted as a problem because of the proposed allowable concentration levels. Numerous hearing record questions were raised concerning accuracy, precision and confidence levels (especially for cyanide, mercury, cadmium and PCB's). Various other issues were advanced including:

(1) Cost involved in performing analytical methods may be significant.

(2) The cyanide definition specifies "simple cyanides" while the analytical methodology was for total cyanides. Further questions were raised as to whether free cyanides and those materials which may yield free cyanides in receiving water should be measured.

(3) Standardization of sampling techniques was indicated necessary by commentors.

(4) An analytical method for detecting the higher chlorinated PCB's was suggested.

(5) Interferences hindering reliability of analyses were discussed.

(6) Physical (suspended/dissolved) state of substances to be regulated was suggested to be important.

(7) Problems in quantitation of the toxic substances were found to exist for several substances."

ES&WQIAC Comment: The National Bureau of Standards Division on Air and Water Quality Measurement (MAZ) is equipped to apply research methods to the problem of analytical methods for use in measurements of toxic substances in HOH. For example - the Water Pollution Measurement Program for FY 1975 is shown on chart in Figure 5.

This Committee recommends that the Effluent Guidelines Division of the Office of Water Programs contact Dr. Robert Ferguson and initiate a program of analytical methods development for the measurement of toxic substances in water.

Dr. Robert E. Ferguson
Senior Scientist
Analytical Chemistry Division
National Bureau of Standards
Chemistry Building Rm A309
Gaithersburg, Maryland 20234
921-2128

Page 13

"(a) "Coastal Waters" means any water of the open sea lying seaward of the baseline from which the territorial sea is measured under the Convention of the Territorial Sea and the Contiguous Zone (15 UST 1606; TIAS 5639).

(b) "Embayments" means any water body adjoining a larger water body such as a Great Lake or river, with limited geographic and/or hydraulic connection to that larger water body. The flow movement of an embayment is primarily in response to seiches."

ES&WQIAC Comment: (a) The legal definition of coastal waters should be expanded to include ecological refinements such as ecotone areas: vegitative communities estuarine/bog/marsh/sune areas etc.

(b) The use of the word seiches here should be re-evaluated. Dictionary definition of seiche describes a seiche as an unusual, sudden, or occassional flow movement...therefor the flow movement of an embayment would not be "primarily in response to seiches".

Page 14

"(c) "Estuary" means any water body between the baseline from which the territorial sea is measured and the landward limit of tidal influence where the salinity is 0.5 parts per thousand or more."

ES&WQIAC Comment: This definition should be restated to define specific salt concentrations from which the territorial sea is measured etc.

Estuary means any water body between (specific salt concentrations) from which the territorial sea is measured and the landward limit of tidal influence where the salinity is 0.5 parts per thousand or more.

Page 15 (k)

" (k) "Seiche Flushing Rate" means the ratio of new water to total flow moving past the discharge point during a seiche."

ES&WQIAC Comment: Computation of determination is difficult.

Page 15 (n)

"(n) "Tidal Prism" means the volume of water contained in the estuary between mean high water and mean low water due to the characteristic seiche."

ES&WQIAC Comment: Needs further consideration in relation to the rationale for the use of the "Tidal Pr'sm" as a consideration for the dilution of toxic wastes.

Page 15 (o)

" (o) "Immediate Vicinity" means an area of one-half the water depth at the discharge vertically and no more than ten times the water depth at the discharge measured in the net flow direction."

ES&WQIAC Comment: Definition is clear, but rationale for the definition in relation to effluent discharge is not clear.

Page 15 (p and q)

" (p) "Fresh Water" means those water bodies [illegible] parts per thousand or less.

(q) "Salt Water" means those water bodies whose salinity is greater than 0.5 parts per thousand."

ES&WQIAC Comment: (p) Add the following after the word salinity (sodium chloride or TDS)

(q) Add the following after the word salinity (sodium chloride or TDS)

Page 16 Design Flow

"2. The design [illegible] the following methods [illegible] minimum [illegible] of the flow [illegible] Subpart II.

(a) Design flow of:

(i) Coastal Waters [illegible] Great Lakes [illegible] Means [illegible] per second calculated from the product of the [illegible] available for dilution in feet per second times the minimum vertical spread for the effluent plume in terms of feet times the minimum horizontal spread of the effluent plume in terms of feet. Where the discharger [illegible] care to make the appropriate measurements, [illegible] may be done assuming minimum velocity [illegible] minimum vertical spread (1/4 of depth) and [illegible] spread (10 depths) which reduces to the [illegible] second being equal to the depth at point of [illegible] divided by four. In the case of the Great Lakes, the depth of the summer thermocline or the depth to the bottom should be used, whichever is the lesser.

(ii) Embayment means [illegible] from the summation of the design flow [illegible] ing the embayment plus the 30 day average [illegible] (representative of normal operations), plus the product of the seiche flushing rate times the seiche prism [illegible] from the point of discharge, all being divided by the period of seiche."

"This is represented in the following relationship:

$$\text{Flow of embayment} = (\text{flows of tributaries} + \text{30 day wastestream flow}) + \frac{(\text{seiche flushing rate} \times \text{seiche prism})}{\text{period of seiche}}$$

or

$$Q_{emb} = \left(Q_{1+2\ldots} + Q_{w}\right) + \frac{RP}{T}$$

where:

Q_{emb} = flow of embayment

$Q_{1+2\ldots}$ = sum of flow of tributaries entering embayment upstream from discharge

Q_{w} = 30 day average wastestream flow

R = seiche flushing rate

P = seiche prism landward from the point of discharge

T = period of seiche

(iii) Estuaries means the flow in cubic feet per second calculated from the summation of the design flows of all the tributaries entering the estuary upstream from the discharge plus the 30 day average waste stream flow (representative of normal operations) the entire sum being multiplied by the ratio of the salinity of the ocean at the mouth of the estuary to the salinity determined as the difference in receiving water salinities at the water surface above the point of discharge and at the mouth of estuary. In estuaries which have little or no tributary inflow, the flow shall be calculated in cubic feet per second from the summation of the 30 day average waste stream flow plus the quantity of the tidal exchange ratio times the

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tidal prism upstream from the point of discharge [illegible] by the duration of the tidal cycle. These are repr[illegible] in the following relationships:

(a) [illegible]

Flow [illegible]

salinity [illegible]

or

Q_{est} [illegible] $Q_{1+2+\ldots}$ [illegible] $+ Q_w$ [illegible]

where:

Q_{est} [illegible]

Q_{1+2} [illegible] sum of [illegible] est [illegible]

Q_w = 50 [illegible]

S_o = salt [illegible]

S_e [illegible]

(b) [illegible]

or

[illegible]

obtaining normal pool water elevation and the beginning of normal operations. Discharges downstream from peaking power hydro-impoundment facilities must discharge proportionally to stream flow or be determined from the minimum of 4 consecutive hourly releases during a 24 hour period."

ES&WQIAC Comment: It is suggested that the methods and terms in determining computations of the flow used in Subpart II for design flow of coastal waters, Great Lakes and estuaries be reviewed because of the following considerations:

1. It is considered that the approach using minimum velocity and minimum vertical spread of the effluent plume expressed in terms of CFS may not be satisfactory, as well as considerations of the tidal prism. May we quote from Velz: 1/

"The early work of engineers centered on the belief that the waters of the tidal prism are completely available for dilution and that the waters are flushed to the sea on each ebb tide, not to be returned on the following flood tide. On this falacy it was postulated that estuaries possessed great capacity to assimilate wastes. However, except in unusual situations where sources of pollution are located near an estuary outlet to the ocean and where there are strong lateral ocean currents, this theory does not hold. Deterioration of harbors have disproved the tidal prism theory."

2. It is considered that a better approach is to make the estimates on the basis of the dilution attained by the waste when mixed with the receiving ocean or lake, utilizing the formulations used for the disposal of wastewaters through submarine outfalls. These theories have been adequately expressed and investigated in numerous technical publications. Burchett et al 2,3/ recently developed a good approach for these calculations. The criteria then would be in terms of times of dilution attained rather than by the estimate of CFS available in the ocean or lake waters. A revision of the loading numbers indicated in Table II of the EPA document are probably necessary. It is considered that the use of the volume in terms of CFS of the ocean or lake waters is misleading.

3. The approach suggested by EPA is for a single discharge and does not take into consideration those systems utilizing multiple outfalls or diffusers. However, when utilizing multiple diffusers, the initial dilution is much higher than the suggested computations based on the minimum vertical spread of 1/4 of the depth. The use of the initial dilution approach will take into consideration those systems utilizing multiple diffusers.

4. The suggested minimum horizontal spread (horizontal or lateral dilution) is dependent on the depth and the particular oceanographic considerations of the area in particular. It can not be said that it is equivalent to 10 times the depth. The proposed EPA calculation is based on a single outlet, and does not consider multiple outlet systems.

5. The phrase "the depth of the summer thermocline or the depth to the bottom should be used, whichever is the lesser". Seems to us that the depth of the summer thermocline will always be less than the depth to the bottom.

Should the approach indicated in (2) use a dilution factor for each of the toxic elements must be derived. The technical literature (4) indicates that for sewage to be discharged in ocean waters, a minimum dilution of 1:225 should be attained.

Estuaries

It is suggested that the dilution attained in the discharge of the toxic waste to estuaries be considered as a distribution from a single waste outlet, as there are no multiple diffusers in most estuaries. The current velocities in the estuaries will vary with the stage of the tide, landwater discharge and geographic position depending on channel configuration. The distribution from the single fixed outlet should be twice the tidal translation for the particular area.

It is suggested that the area of distribution to be considered be determined on the basis of the velocity of the ocean currents and the prevailing tides to determine the translation on an ebb or a flood tide, and determine the block where the waste will mix. This is adequately explained in reference 1, page 347-8-9.

Coastal Waters and Lakes*

The same flow of coastal waters or Great Lakes means the product of the initial and lateral or horizontal dilution when the waste is discharged from a single and/or multiple diffuser, taking into consideration the depth of discharge, mean surface current velocity, and prevailing tide. The initial dilution shall be calculated by turbulent jet mixing, utilizing the formula

$$D_i = \frac{V_s \quad bd}{} \qquad (1)$$

where

V_s is the current surface velocity

b is the effective width of the diffuser system

d is the average depth of the wastewater field

[illegible] is the flow

or it may also be estimated using Figure 1 for calculating the [illegible] [illegible], which will be plotted as the ratio of the depth of the wastewater field, and the discharge orifice, as follows:

---

* After reference 1 and [illegible].

$$F = \frac{V_j}{(\Delta S/S)\ gD} \qquad (2)$$

where

V_j is the jet velocity

ΔS is the difference in specific gravity between the wastewater and the surrounding wastewater

S specific gravity of the waste

g is the acceleration due to gravity

D is the discharge jet diameter

Where V is not known, a velocity of 15 feet per second could be used. Where the difference in specific gravity for a normal wastewater and sea water is not known, S could be assumed to be 0.999, for the wastewater, and 1.025 for the surrounding sea water.

The initial dilution value to be used in the computations shall be the lower result of the two formulations.

Horizontal Dilution shall be estimated from Figure 2. The distance of travel of surface currents can be estimated by the formula

$$D = 1.9577\ Vs \qquad (3)$$

where D is the horizontal distance traveled in miles and Vs is the surface current velocity in miles per hour.

The total dilution is the product of the initial and horizontal dilution

$$D_T = D_I \times D_H \qquad (4)$$

where

D_T is total dilution

D_I is initial dilution

D_H is horizontal dilution.

The dilution factor (D_T) to be attained by the toxic effluent shall not be less than 1:____.

Page 19 (iv)

(iv) [illegible]

[illegible]

[illegible]

[illegible]

more. [illegible]

[illegible]

[illegible]

[illegible] Comment: Utilization of this concept is acceptable where flow data are available.

Department of Interior and Army Corps of Engineers doubt that this be available over a period of years, except in cases of large well studied lakes, (Erie, Ohio, Michigan, [illegible] and others, or in [illegible] wastewater [illegible] that have been monitored to a specific industry).

Page 19 (v)

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] Comment: [illegible] requirement. [illegible] make standards more feasible.

Page 24

[illegible]

to derive effluent limitations [illegible]

and chronic toxicity for important organisms in the aquatic environment.

TABLE I
TOXICOLOGICAL BASIS FOR STANDARD DERIVATION

	Acute Toxicity		Chronic Toxicity	
	fresh water ug/l	salt water ug/l	fresh water ug/l	salt water ug/l
Aldrin-Dieldrin	0.5	0.7	0.003	0.003
Benzidine	2500	-	.012	-
Cadmium - Hardness as ≤ $CaCO_3$ 100 mg/l	70		0.4	-
Cadmium - Hardness as > $CaCO_3$ 100 mg/l	2000	320	3.0	5.0
Cyanide	100	100		
DDT	0.36	0.74	0.001	0.001
Endrin	0.4	0.4	[illegible]	[illegible]
Mercury	50	50	[illegible]	0.10
PCB's	200	100	[illegible]	0.01
Toxaphene	2.0	2.0	[illegible]	[illegible]

ES&WQIAC Comment: Legal wording of statement should include a mandate requiring the important organisms at each point source be identified and their respective resistance to the specific toxic substances discharged at that point be spelled out (see Uniform Effluent [illegible] 197/for this information by industry).

Page 26

[illegible]

ES&WQIAC Comment: How will computations be made in cases where multiple discharges occur?

Page 27

TABLE II

Streams & Lakes

	Chronic Toxicity	Loading Factor	
	ug/l	lb/day/[illegible]	kg/day/[illegible]
Aldrin Dieldrin	0.00[illegible]	0.[illegible]	0.[illegible]
Benzene	0.00[illegible]	0.[illegible]	0.00[illegible]
Cadmium (soft water)	0.4	0.[illegible]	0.0[illegible]
(Hard water)	[illegible]	0.[illegible]	0.2[illegible]
DDT	0.[illegible]	0.[illegible]	0.[illegible]
Endrin	0.00[illegible]	0.0[illegible]	0.[illegible]
Mercury	0.[illegible]	0.[illegible]	0.[illegible]
PCBs	0.01	0.0[illegible]	0.0[illegible]
Toxaphene	0.01	0.[illegible]	0.0[illegible]

[illegible]

	[illegible]	[illegible]	
	ug/l	[illegible]	[illegible]
Aldrin Dieldrin	[illegible]	[illegible]	[illegible]
Benzene	[illegible]	[illegible]	[illegible]
Cadmium	[illegible]	[illegible]	[illegible]
DDT	0.[illegible]	[illegible]	[illegible]
Endrin	0.0[illegible]	[illegible]	[illegible]
Mercury	0.2[illegible]	0.[illegible]	[illegible]
PCBs	0.01	0.[illegible]	0.[illegible]
Toxaphene	0.0[illegible]	0.[illegible]	[illegible]

(SAWQIAC Comment: Loading numbers for streams and lakes are not necessarily always the same - language should include references to specific point sources in each of these categories.

Chronic toxicity wording not descriptive; suggest change to read "safe level" ...

[illegible] should also be considered in terms of the [illegible] made on [illegible] comments.

[illegible]

[illegible]

ES&WQIAC Comment: The use of the term "measurable flow" is an inprecise way to develop a proposed effluent standard. It is recommended that this sentence be changed to read as follows: "When the actual flow of ephemeral stream drops below a value of 10 times the waste discharge of the listed pollutants shall be prohibited until the stream again regains a flow in excess of 10 times the discharge waste".

Page 33 Proposed Effluent Standards:
A through I
Example:

"(4) The total daily weight of benzidine discharged into a/an:

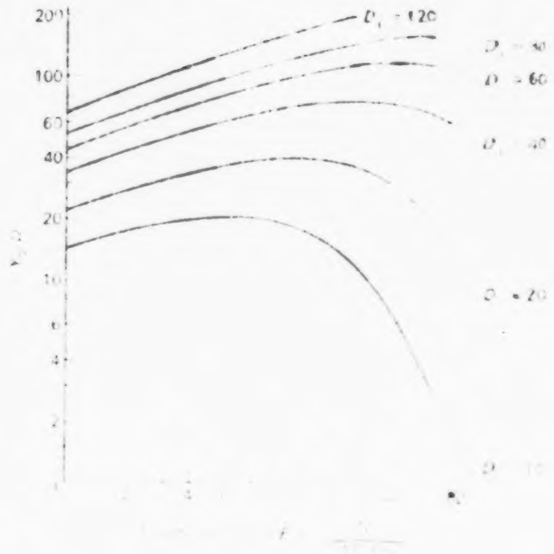
(a) Stream, lake or impoundment, embayment, or a Great Lakes [illegible] shall not exceed 0.0015 times the receiving water body [illegible] to give Kg/day or 0.000008 times the receiving water body [illegible] as defined in cfs to give pounds/day unless there is [illegible] point in the immediate vicinity, in which case no [illegible] in excess of 0.43 Kg/day or 0.98 pounds/day [illegible] flow."

ES&WQIAC Comment: The document should include data base for which all of these numbers, such as 0.98 lbs/day, were generated.

In addition, the ES&WQIAC provided the following suggestions to EPA in the spring of 1974 on the Toxic Substances List and reaffirms these concepts herein: (see Figure 3).

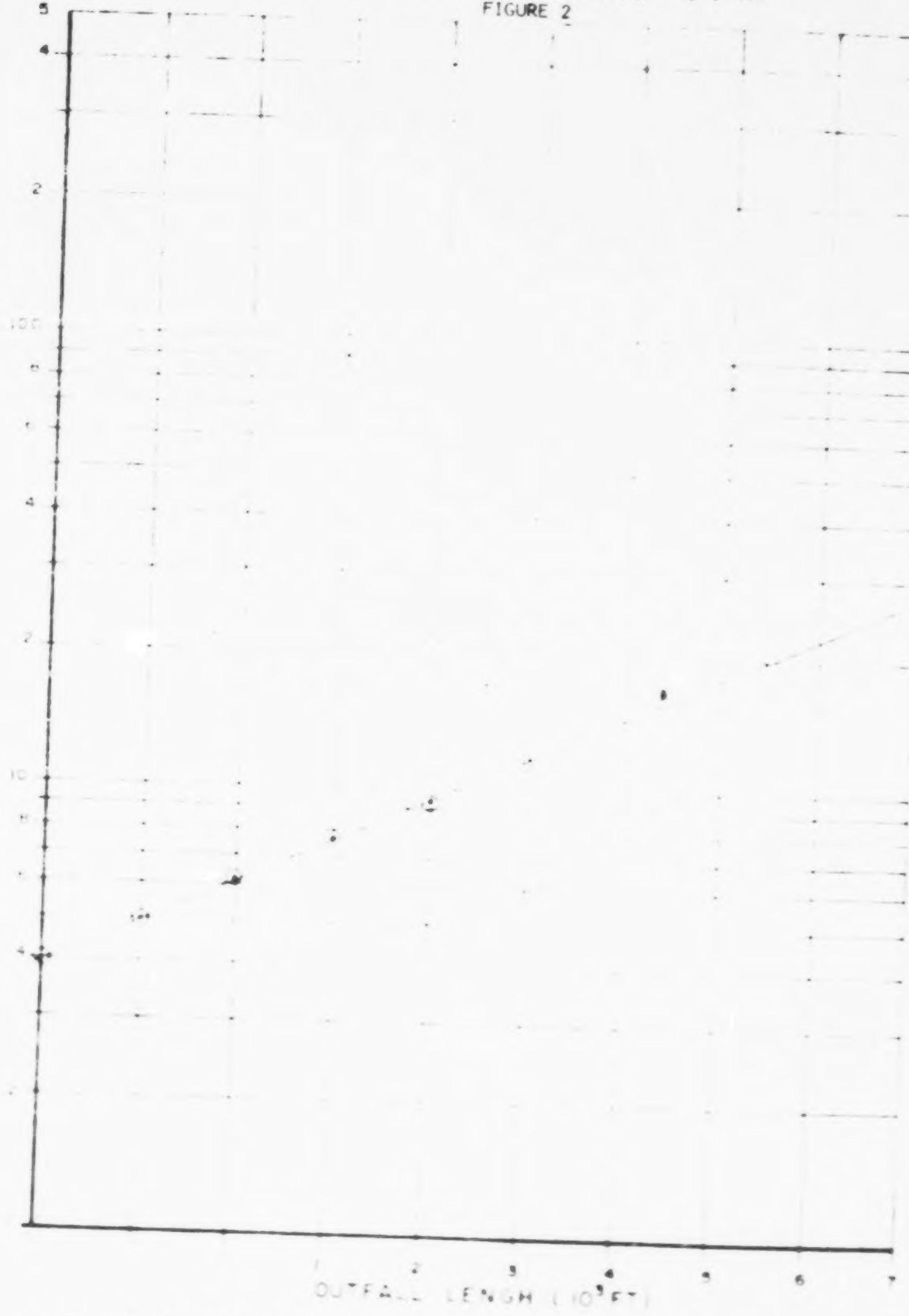
Further, the ES&WQIAC prepared a position-paper on the total concept of the development of effluent limitations for point source discharges of toxic substances in the spring of 1974 for the Administrator of EPA. The Committee reaffirms its comments as stated in that paper, for the spring of 1975 (see Figure 4).

FIGURE 1



PHISICAL DILUTION AT VARIOUS OUTFALL LENGHT

FIGURE 2



R M GUZMAN ASSOC SAN JUAN P R

FIGURE - 2

FIGURE 3

ES&WQIAC TOXIC SUBSTANCE LIST COMMENTS

With reference to formation of toxic pollutant list required by Section 307 of P.L. 92-500, the committee would like to make recommendations concerning the basis for inclusion on the list:

1. Any toxic substance demonstrated to affect aquatic organisms adversely should be included provided that (a) adequate experimental data are available to set safe limits and (b) accumulation of materials to unsafe levels for the organism or to other organisms higher in the food chain have been demonstrated.

2. Substances should not be excluded from the list because of uncertainty concerning problems of monitoring.

3. Materials related to human health should not be included on the list unless their relationship to aquatic organisms is demonstrated or detrimental accumulation in human food of aquatic origin has been shown.

4. Human health concerns with toxic materials in water should be dealt with through established drinking water standards.

5. Toxic effluent limits which would be more restrictive than best practical treatment should be adjusted in accordance with water quality standards in receiving waters.

6. Substances which after discharge to water form, through chemical or biological means, toxic materials as outlined above should be included on the list.

In summary, the toxic list should include all materials demonstrably detrimental to aquatic life where sufficient data are available to set safe limits in the receiving water. Where toxic substances have insufficient discharge from point sources to constitute a hazard, regardless of effluent strength they should not be included.

FIGURE 4

ES&WQIAC POSITION PAPER ON TOXIC SUBSTANCE REGULATIONS

ES&WQIAC has considered the materials on the toxic substance list authorized in Section 307 of P.L. 92-500 in the light of several hearings, basic data available to the committee, and comments from industry. The committee would like to draw several considerations to the attention of the Administrator and to present its comments with reference to this important requirement of the law. These comments are submitted for possible future guidance and have not been formulated with reference to legal interpretations of Section 307 or administrative and implementation restraints.

1. Adequate research has not been done on some of the materials proposed for a toxic list to insure accurate evaluation of their toxicity to aquatic, terrestrial, and human life when these materials are released in water.

2. Available data on some materials indicate that biomagnification in fish and invertebrates can far exceed levels tolerable for human or animal consumption although concentrations in water may be below levels detectable by usual field chemical procedures.

3. For some materials (cyanide) field chemical procedures are not available to give accurate assessment of the toxic form (HCN) and, further, the proportion of total cyanide which is made up of HCN cannot be predicted accurately when certain compounds subject to photodecomposition (ferrocyanide) are in the effluent. Turbidity, water color, temperature, pH, amount of sunlight, and time of day may alter the amount of HCN present.

4. A sliding scale of effluent limitation based on the degree of dilution places differential economic burden on discharges depending on

(CONT. FIG. 4)

geographic location; further, increased effluent discharge based on amount of dilution in the receiving water will not necessarily protect organisms from the biomagnification alluded to above.

5. Rigid enforcement of effluent standards which guarantee absolute protection of all aquatic, terrestrial, and human life and prevent significant biomagnification has the potential of shutting down important segments of industry, particularly if present stipulated compliance deadlines are observed.

6. The requirements of best available treatment (BAT) of effluents by 1983 will satisfy most objectives of 307 by that date and application of best practical treatment (BPT) will minimize some problems.

In view of the considerations outlined above, the Committee submits the following comments.

1. Effluent standards for toxic substances should be based on a preponderance of scientific evidence demonstrating effects on human, terrestrial animal, or aquatic life [illegible] affected by the discharged material.

2. It should be [illegible] that effluent [illegible] protection of human, terrestrial, or aquatic [illegible] affecting [illegible]

3. Effluent standards [illegible] discharged rather than concentration [illegible] series of plants [illegible] the dilution factor.

(CONT. FIG. 4)

4. Where potential biomagnification in fish and subsequent ingestion by animals or humans is the basis for establishment of an effluent standard demonstrated levels of accumulation should be established before promulgation of the standard.

5. Materials for which removal technology is not available should be omitted from the toxic list unless detriment to humans, terrestrial animals, or aquatic life at probable levels of ingestion of fish or invertebrates or direct exposure is demonstrated by a preponderance of scientific data.

6. The time limit for compliance should be extended sufficiently to permit installation of available removal technology.

WATER POLLUTION MEASUREMENT PROGRAM

DIVISION	LEADER	PROJECT TITLE	FUNDING $K
[illegible]ALYTICAL [illegible]	[illegible]	[illegible] Heavy Metal [illegible]	50
[illegible]	[illegible]	[illegible]	50
[illegible]ICAL [illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

REFERENCES

1. [illegible]

2. [illegible]

3. [illegible]

4. [illegible]